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CHRONOLOGICAL CATALOG OF REPORTED LUNAR EVENTS

by

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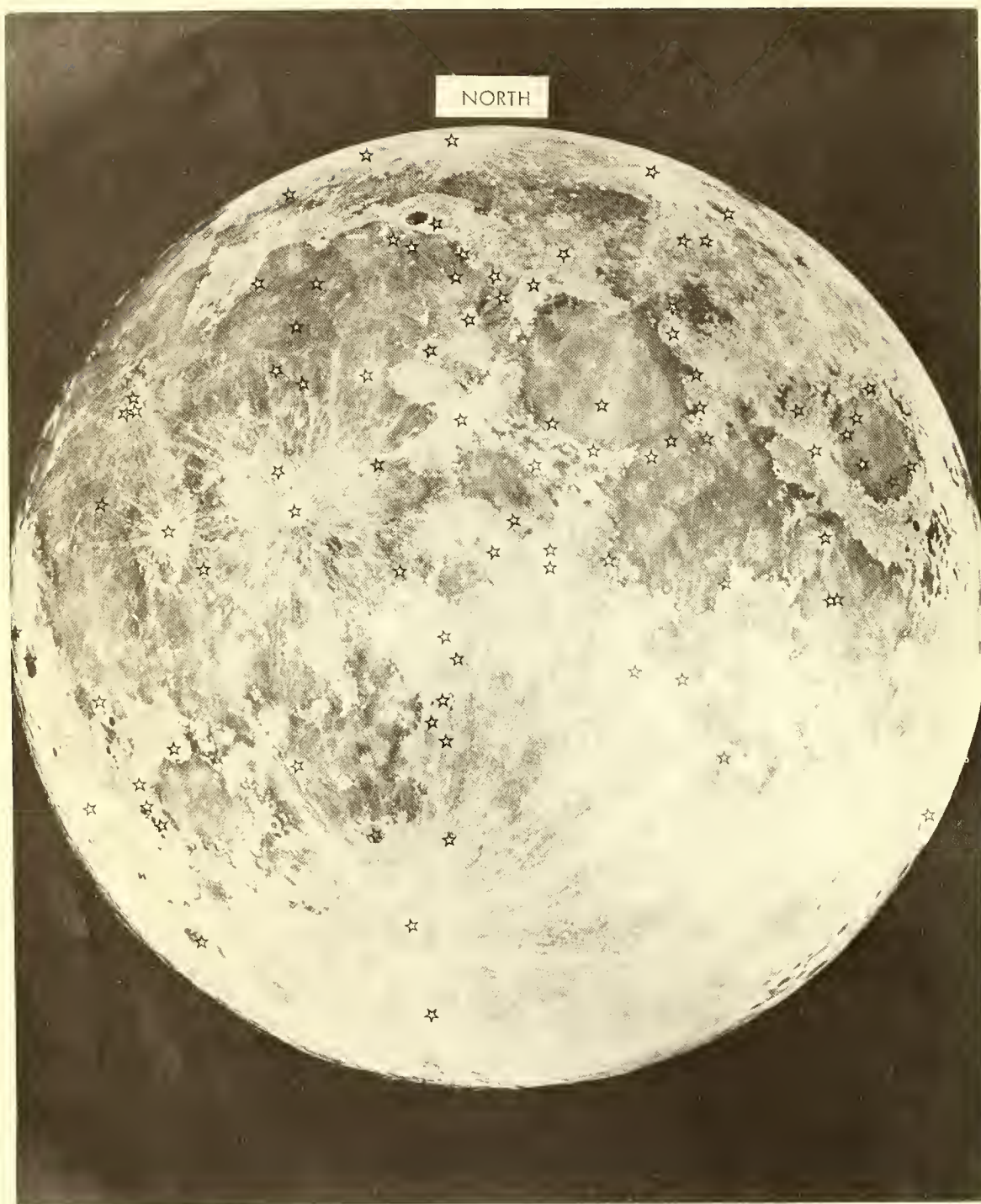
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ABSTRACT

A catalog of reports of lunar events, or temporary changes on the moon, has been compiled based on literature covering more than four centuries. In most cases, the original reference has been consulted; Houzeau and Lancaster's *Bibliographie Général d'Astronomie* and the *Astronomischer Jahresbericht* were useful secondary sources. Each entry includes a brief description and date of the observation, the name of the observer(s), where these are known, and the reference.

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Frontispiece—Topographical distribution of reported lunar event sites indicated by stars.
[After Middlehurst and Moore, 1967, *Science* 155, 449.]

CHRONOLOGICAL CATALOG OF REPORTED LUNAR EVENTS

by

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and Barbara L. Welther[‡]

INTRODUCTION

A catalog of reports of lunar events, or temporary changes on the moon, has been compiled based on literature covering more than four centuries. In the majority of cases the original reference has been consulted; secondary sources such as the new (1964) edition of Houzeau and Lancaster's *Bibliographie Général d'Astronomie* and the *Astronomischer Jahresbericht* were also used. Each entry includes a brief description and date of the observation, the name of the observer(s), where these are known, and the reference. The purpose of this catalog is to provide a listing of historical and modern records that may be useful in investigations of possible activity on the moon.

DESCRIPTION OF THE CATALOG

A lunar event is defined here as a temporary change, other than that due merely to conditions of illumination, in the appearance of a lunar feature involving a limited area, generally a few kilometers in dimension. Reports of observations of temporary bright spots, as well as veils, obscurations, and brightening of the floors of craters and other small areas have been included. No reports of apparently long-term changes are given; many of these have been reported for sites such as Messier, Linné, and Bartlett, but in most cases, the evidence is not conclusive for real changes, as it involved conflicting reports of the craters' appearances over periods of years, rather than changes actually in progress.

The catalog contains all information available to us through October 1967; many of the reports listed are taken from publications that are not now generally available. Column 1 gives a running number, column 2 the date of the occurrence, Gregorian except for the first entry which predates

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the use of the Gregorian calendar* and the time at 0° longitude except where otherwise noted, column 3 the site and duration of the event, column 4 a short description of the phenomenon, column 5 the observer, and column 6 the reference. The references are given alphabetically following the catalog. Where permanent records (e.g., photographs, spectra, or photometric or spectrometric records) exist, a footnote is given.

Due to the form of the data presentation the maximum duration of the changes as listed covers a few hours only; nevertheless, it may not properly represent the total period of activity in the site. Many cases of reports for the same site on consecutive or nearly consecutive nights are given, and weather and other factors may have limited the observing period within a single night.

Throughout the catalog the use of the terms "east" and "west" follows the convention adopted by the International Astronomical Union (IAU) in 1961 in which the classical, or astronomical, "east" was changed to the astronomical "west", which is in agreement with ordinary terrestrial mapping with east at right and west at left.

As far as possible, we eliminated reports of events that, for one reason or another (e.g., possibly because of special lighting effects, multiple reflections, and changes of appearance caused by libration), are considered to be spurious. Reports of this type are discussed in the following section. In a large number of the historical cases, the high stature of the observer as a scientist inspires confidence in the reliability of the report and, for the rest, we saw no reason to dismiss the observation except in the cases listed in the next section. Almost certainly some doubtful cases remain listed in the catalog. However, their distribution with respect to almost any non-observational lunar variable is probably random, and we believe that statistically they are unimportant.

The fraction of past events which is recorded in the available literature is difficult to assess. Over the years, interest in lunar matters, and particularly in changes and events, has waxed and waned. Wars have intervened, and bad weather cycles have undoubtedly reduced the amount of observing at times. The number of observed lunar events is influenced by many other factors, such as the light-gathering power and resolution of the telescope used, the amount of time devoted to observation, and the skill and experience of the observers. It is notable that a marked increase in the frequency of the reports occurs from 1783 to 1800 following Herschel's observations of "lunar volcanoes" on May 4, 1783. This increase is almost certainly due to the interest generated among astronomers in England, France, and Germany. The gap between 1800 and 1821 correlates with unrest in Europe where most astronomers of that period lived. In 1813 the Napoleonic armies returning from Moscow overran and destroyed Schröter's observatory, home, and many of his later manuscripts. The time was a difficult one for science, and few advances in astronomy were made.

Reports of dark-side events are more frequent among the earlier observations, when the light-gathering power of most telescopes was relatively small and the field often included the image of

*Adopted in 1582 in Catholic countries, but not until 1752 in England and her colonies, and in 1923 in Russia and other Eastern Orthodox countries.

the whole moon. Operation Moon Blink (described elsewhere, e.g., Association of Lunar and Planetary Observers (ALPO) reports) and similar undertakings in other countries helped increase the frequency of reports of lunar events during the last few years. The frontispiece shows the topographical distribution of sites of reported lunar events.

REPORTS OMITTED FROM THE CATALOG

We attempted to eliminate all doubtful reports from this catalog. Less than full realization by the observers of the effects of changing conditions of illumination and other factors may have resulted in erroneous reports. Hazards of illumination include earthshine (strongest during the first and last three days of a lunation), sunshine on peaks just beyond the terminator, differences in albedo and color in small regions, and multiple reflections from crater walls. Careless reporting has been discovered in one case only (Hammes 1878, see below).

The following records are reports in which special appearances may be due to unusual lighting conditions or other temporary effects external to the moon, or which are unacceptable for other reasons. These reports are not included in the catalog.

1789 July 30. J. H. Schröter (1791, *Selenotopographische Fragmente*) "soon after sunrise" saw a kind of ferment on the floor of Plato which clearly resembled a kind of twilight.

1856 April 8, and 1860 April 24. J. Schmidt (1879, *Vierteljahrschrift für Astronomie*, 14, 265) noted weak glows in the crater Boussingault, but he doubted that these were more than sunlight on the walls re-reflected from the floor.

1878 November 12, 8:30 local time. John Hammes and friends in Iowa reported seeing a lunar "volcano." Correspondence in *Scientific American* (Dec. 21, 1878, 39, 385) includes drawings, an identification by Admiral Rogers of the supposed location, and a certification of John Hammes' respectability and good standing by the Mayor and three other citizens of Koekuk, Iowa. On investigation, it became clear that some of Hammes' details were incorrect, and since his drawings showed such poor detail, the site identification is questionable.

1899 August 29. P. Fauth (1899, *Astr. Nach.*, 151, 219) noted that the inner parts of Copernicus glowed in weak phosphorescent light though not directly lighted by the sun. The observer noted, however, that the effect was probably due to multiple reflection, as the sun was then shining on the walls of the crater.

1909 January 24 and 25. Krebs (1909, *Astr. Nach.*, 181, 45) and Nicolis noted that the non-illuminated part of the moon glowed red. These observations may have been due to special effects in the earth's atmosphere. Some eclipse reports originally included have been omitted from the list for similar reasons. Only where the observers described clearly bounded bright areas or rapid changes in brightness have eclipse observations been listed.

1964 - . Where the observations record progressive changes (on a number of occasions) by a succession of observers, apparently without adequate checks on subjectiveness, we felt sufficient doubt of the reality of a lunar event to omit the report.

In spite of the care taken, we may have wrongly included (or excluded) a number of items, but we believe that the total of these is quite small. For additional evidence in regard to the list of reported events, the following critical discussions and references are given:

Burley, J. M., and Middlehurst, B. M., 1966, "Apparent Lunar Activity: Historical Review," *Proc. Nat. Acad. Sci.*, 55, No. 5, 1007-1011.

Chapman, W. B., 1967, "Tidal Influences at the Lunar Crater Aristarchus," *J. Geophys. Res.*, 72, No. 24, 6293-6298.

Middlehurst, B. M., and Moore, P. A., 1967, "Topographical Distribution of Lunar Transient Phenomena," *Science*, 155, No. 3761, 449-451.

Middlehurst, B. M., 1967, "An Analysis of Lunar Events," *Reviews of Geophysics*, 5, No. 2, 173-189.

Middlehurst, B. M., 1967, "A Note on Lunar Transient Phenomena," *Icarus*, 6, No. 1, 140-142.

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CHRONOLOGICAL CATALOG OF REPORTED LUNAR EVENTS¹

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
1	1540 Nov 26, ~05 ^h 00 ^m	Region of Calippus ²	Starlike appearance on dark side.	Observers at Worms	Hess 1911
2	1587 Mar 5 ²	Dark side	"A sterre is sene in the bodie of the mone vpon the (blank) of Marche, whereat many men merueiled, and not without cause, for it stode directly betwene the pointes of her hornes, the mone being chaunged, not passing 5 or 6 daies before."	Anonymous	Harrison 1876; Lowes 1927
3	1650	Aristarchus	"Red hill." Mons Porphyrites.	Hevelius	B.A.A. Lunar Sec. <u>Circ.</u> 1967, <u>2</u> , No. 8
4	1668 Nov 26 ²	Dark side	Bright starlike point.	Several New Englanders	Josselyn 1675; Mather 1714; Lowes 1927
5	1671 Oct 21	Pitatus			Bode 1792a; Lalande 1792 (1966)
6	1671 Nov 12	Pitatus	Small whitish cloud.	D. Cassini	Bode 1792a; Lalande 1792 (1966)
7	1672 Feb 3	Mare Crisium	Nebulous appearance.	D. Cassini	Bode 1792a; Lalande 1792 (1966)
8	1673 Oct 18	Pitatus	White spot.	D. Cassini	Bode 1792a; Lalande 1792 (1966)
9	1685 Dec 10, ~22 ^h 28 ^m	Plato	Reddish streak on crater floor seen during eclipse (lunar).	Bianchini	Bianchini 1686; Klado 1965
10	1706 May 12		Three sparkling spots.		Bode 1792a
11	1715 May 3, ~09 ^h 30 ^m		"Lightning" on the face of the moon. De Louville explained this as storms. Halley reference uses Old Style date.	Louville, Halley	Louville 1715; Halley 1715; Schröter 1791; Houzeau 1882; Houzeau and Lancaster 1964 ed.

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
12	1725 Aug 16	Plato	A track of ruddy light, like a beam, crossing the middle of the obscure (shadowed) area (crater in darkness).	Bianchini	Hesp. Phos. Phaenom. 1728; Sirius 1887; Wilkins 1958
13	1738 Aug 4, 16 ^h 31 ^m		During solar eclipse, appearance like lightning on the face of the moon. (Partial eclipse.)	Friend of Weidler	Phil. Trans. 1739
14	1751 Apr 22	Plato	Yellow streak of light across crater floor while crater was in darkness.	Short, Stephens, Harris	Sirius 1887
15	1772 Oct 11, ~17 ^h 13 ^m		Bright spot on disk of fully eclipsed moon.	Beccaria's nephew and niece	Beccaria 1781; Klado 1965
16	1774 Jul 25	Mare Crisium	Four bright spots. Peculiar behavior of terminator.	Eysenhard	Webb 1962 ed., pp. 106-107
17	1778 Jun 24, ~15 ^h 38 ^m	1½ min	During solar eclipse, observed spot near lunar limb almost as bright as sun.	Ulloa	Ulloa 1779, 1780; Houzeau and Lancaster 1964 ed.; Klado 1965
18	1783 Mar 18 or Sep 10		Moving gloys around middle of disk during lunar eclipse.	Messier	Liais 1865; Pop. Astr. 1894-95
19	1783 Mar	Near Aristarchus	Bright points seen during observation of star occultation.	W. Herschel	Schröter 1791
20	1783 May 4	Aristarchus, vicinity	Red spot, 4th mag, diameter <3".	W. Herschel, Mrs. Lind	Herschel 1912
21	1784	Aristarchus	Nebulous bright spot of light.	Schröter	Schröter 1791
22	1785	Aristarchus	Nebulous bright spot of light.	Schröter	Schröter 1791
23	1786 Dec 24	Aristarchus	Extraordinarily bright.	Schröter	Schröter 1791
24	1787 Mar	Dark side	Three bright spots.	W. Herschel	Schröter 1791
25	1787 Apr 19	Dark side	Three "volcanoes." The brightest, 3'57".3 from N limb, the other two much farther toward the center of the moon.	W. Herschel	Herschel 1787, 1912
26	1787 Apr 20	Dark side	Brightest "volcano" even brighter and at least 3 mi in diameter.	W. Herschel	Herschel 1787, 1912
27	1787 May 19-20	Aristarchus	Extraordinarily bright.	von Brühl	Bode 1790; Schröter 1791; Herschel 1912

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
28	1787 May 22	Helicon	Bright spot on dark side.	Villeneuve	Lalande 1792 (1966)
29	1788 Jan 11	Near Plato		Observers in Mannheim	Schröter 1791
30	1788 Mar 9-10	Dark side	Bright spot.	Schröter	Schröter 1791
31	1788 Mar 13	Riccioli	Bright spot.	Schröter	Schröter 1791
32	1788 Mar 13	Helicon	Lunar volcano like 6th mag star.	Nouet	Schröter 1791; Bode 1792a; Lalande 1792 (1966)
33	1788 Apr 9	Aristarchus; 1 hr	Extraordinarily bright.	Bode	Bode 1792b
34	1788 Apr 9-11	Aristarchus	Bright spot 26" N of crater rim.	Schröter, Bode	Schröter 1789, 1791, 1792a, 1792b
35	1788 May 8		Bright spots.	Mechain	Lalande 1792 (1966)
36	1788 May 8-9		Bright spots.	Bode	Bode 1792b
37	1788 Aug 27		Bright spot.	Schröter	Schröter 1791
38	1788 Sep 26, 4:25 am ³	N edge of Mare Crisium	Small nebulous bright spot.	Schröter	Rozier 1788, 1792; Schröter 1791
39	1788 Sep 26	1'18" SE of Plato; 15 min	Whitish bright spot shining somewhat hazily and 4" to 5" in diameter, 5th mag, SE of Plato in bright mountainous region bounding Mare Imbrium.	Schröter	Schröter 1789, 1792a, 1792b; <u>Sirius</u> 1888
40	1788 Sep 26	Near Aristarchus; 30 min	Bright spot 26" N of main crater.	Schröter	Rozier 1788, 1792; Schröter 1791
41	1788 Dec 2, 5:35 am ³	Aristarchus	Extraordinarily bright, like star.	Schröter	Schröter 1791
42	1788 Dec 11	Plato	Bright area, like thin white cloud.	Schröter	Klein, Woch. für Astr.; <u>Sirius</u> 1878
43	1788	Aristarchus	Brilliant spots.	Bode	Bode 1792b; Houzeau and Lancaster 1964 ed.
44	1789 Jan 10		Lunar volcano.	Seyffer	Seyffer 1789; Houzeau and Lancaster 1964 ed.

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
45	1789 Mar 29-30	Grimaldi, and near Riccioli	Two flickering spots on E edge of Grimaldi, and near Riccioli on dark side of moon a bright spot.	Schröter	Schröter 1789, 1791; Houzeau and Lancaster 1964 ed.
46	1789 Mar 29-31	Aristarchus	Nebulous bright area.	Schröter	Schröter 1791
47	1789 Mar	Near Aristarchus	Brilliant spots near Aristarchus; luminous spots on dark side.	Bode	Bode 1788-89, 1789, 1793; Houzeau and Lancaster 1964 ed.
48	1789 Apr	Near Aristarchus	Brilliant spots near Aristarchus; luminous spots on dark side.	Bode	Bode 1788-89, 1789, 1793; Houzeau and Lancaster 1964 ed.
49	1789 May	Near Aristarchus	Brilliant spots near Aristarchus; luminous spots on dark side.	Bode	Bode 1788-89, 1789, 1793; Houzeau and Lancaster 1964 ed.
50	1789 Sep 26	Mont Blanc; 15 min	Small speck of light at foot of mountain, like 5th mag star.	Schröter	Pickering 1902; Webb 1962 ed., p. 113
51	1790 Jan 17	Aristarchus region	Small, hazy spot of light.	Schröter	Schröter 1791
52	1790 Feb 15-18	Aristarchus region	Small, hazy spot of light.	Schröter	Schröter 1791
53	1790 Mar 19	Aristarchus region	Small, hazy spot of light.	Schröter	Schröter 1791
54	1790 Oct 22		During total eclipse, Herschel saw at least 150 small, round, bright, red luminous points. (Mid-eclipse, lunar, Oct 23, 00 ^h 41 ^m .)	W. Herschel	Herschel 1912 ed.; Klado 1965
55	1792 Feb 24		Cusps of moon showed signs of atmosphere.	Schröter	Webb 1962 ed., p. 97
56	1792	Aristarchus	Many occasions; special appearance.	Bode	Bode 1792a
57	1792	Dark side	Brilliant spots.	Schröter	Schröter 1792a, 1792b
58	1794 Mar 7	Dark side; 15 min	Appearance of light like a star seen in dark part of the moon.	W. Wilkins, Stretton	Wilkins 1794; Stretton 1794; Maskelyne 1795; Moore 1953; Houzeau and Lancaster 1964 ed.
59	1797 Mar 2	Promontorium Heracleides, vicinity	"Observations of a volcano on the moon."	Caroché	Caroché 1799; Houzeau and Lancaster 1964 ed.
60	1797 Jul 2	Mare Vaporum	Vapors resembling mountain.	Schröter, Olbers	Klein 1879

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
61	1799	Dark side	Bright spots on dark side, seen during five different lunations.	Piazzi	Piazzi 1800; Houzeau and Lancaster 1964 ed.; Treanor and O'Connell 1965
62	1820 Oct 17	S of Sinus Iridum	Brilliant spots in Mare Imbrium S of Sinus Iridum.	Luthmer	Luthmer 1824
63	1821 Feb 5-6	Aristarchus, vicinity	Luminous appearance on dark side; 6th to 7th mag, 3' to 4' diameter.	Kater, Olbers, Browne	Kater 1821; Olbers 1822, 1824; Gauss 1874; Houzeau and Lancaster 1964 ed.
64	1821 Apr 7	Posidonius	Appeared without shadow.	Gruithuisen	Webb 1962 ed., p. 110
65	1821 May 4-6	Aristarchus, vicinity	Bright spot on dark side, <1' diameter.	Ward, Bailly	Ward 1822; Bailly 1822
66	1821 Jul 25	Dark side	Brilliant flashing spots.	Gruithuisen	Gruithuisen 1824
67	1821 Nov 28, ~20 ^h 00 ^m	Dark side	Variable bright spot like 6th mag star.	Fallows	Fallows 1822
68	1822 Jan 27	Aristarchus, vicinity	Bright spot like 8th mag star.	F. G. W. Struve	Struve 1823
69	1822 Jun 22-23	Aristarchus	Lunar "volcano."	Rüppell	Rüppell 1822
70	1822		"Volcanoes" on the moon; several occasions.	Flaugergues	Flaugergues 1822
71	1822		Lunar "volcano."	Zach	Zach 1822
72	1824 May 1	Near Aristarchus	Blinking light, 9th to 10th mag on dark side.	Göbel	Göbel 1826
73	1824 Oct 18	Aristarchus, vicinity	Mingling of all kinds of colors in small spots in the W and NW of Aristarchus.	Gruithuisen	Gruithuisen 1824; Fauth 1899
74	1824 Oct 20, 05 ^h 00 ^m	Dark side, Mare Nubium	Bright area 100 x 20 km.	Gruithuisen	Flammarion 1884; Azevado 1962
75	1824 Dec 8	Plato	Bright fleck in SE part of crater.	Gruithuisen	Sirius 1879
76	1825 Apr 8	Plato	W part of crater brighter than E part.	Gruithuisen	Sirius 1879
77	1825 Apr 22	Aristarchus and vicinity	Periodic illumination.	Argelander, Göbel	Argelander 1826; Göbel 1826

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
78	1825 Dec 1, 23 ^h 45 ^m	Ptolemaeus	Bright spot.	Schwabe	<u>Sel. J.</u> 1880
79	1826 Apr 12, 20 ^h 00 ^m	Mare Crisium	Black moving haze or cloud.	Emmett	Emmett 1826; Capron 1879
80	1826 Apr 13, 20 ^h 00 ^m	Mare Crisium; 1 hr	Cloud less intense.	Emmett	Capron 1879
81	1832 Jul 4	Mare Crisium	Speckled with minute dots and streaks of light.	T. W. Webb	Astr. Reg. 1832; Webb 1962 ed., p. 105
82	1832 Dec 25	Aristarchus, vicinity	Bright spot.	C. P. Smyth	Smyth 1836
83	1835 Dec 22, 18 ^h 30 ^m	Near Aristarchus	Bright spot, 9th to 10th mag.	C. P. Smyth	Smyth 1836
84	1836 Feb 13	Messier	Two straight lines of light; a band between covered with luminous points.	Gruithuisen	Sci. Amer. Supp. <u>Vol. 7</u>
85	1839 Jun 24	Grimaldi	Smoky-gray mist.	Gruithuisen	<u>B.A.A. Mem.</u> 1895
86	1839 Jul 7	South Pole	Twilight.	Gruithuisen	<u>B.A.A. Mem.</u> 1895
87	1839 Jul 19	Schröter	Dark mist.	Gruithuisen	<u>B.A.A. Mem.</u> 1895
88	1842 Jul 8, 07 ^h 02 ^m		During solar eclipse, moon's disk occasionally crossed by bright streaks.		Wullerstorff 1846; Zantedeschi 1846
89	1843 Jul 4	Peak S of Alps	On terminator saw an unusually bright spot that glowed like a fixed star.	Gerling	Gerling 1845; <u>Sirius</u> 1888
90	1844 Apr 25	SW of Pico	A bluish glimmering patch of light, not quite within the night side of the moon.	J. Schmidt	<u>Sel. J.</u> 1878
91	1847 Mar 18, 19	Dark side	Large luminous spots on dark side.	Rankin, Chevalier	Rankin 1847; Houzeau and Lancaster 1964 ed.
92	1847 Dec 11, 18 ^h 00 ^m	Teneriffe Mts.	A bright spot about 1/4-ang diam of Saturn was perceived which, though it varied in intensity like an intermittent light, was at all times visible (dark side).	Hodgson	Hodgson 1848
93	1848 Mar 19, 21 ^h 12 ^m		During eclipse, rapid changes in red color. (Lunar eclipse.)	Gorjan	<u>M. N.</u> 1847-48; <u>Lias</u> 1865

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
94	1849 Feb 11	Posidonius	Without normal shadow.	J. Schmidt	Webb 1962 ed., p. 110
95	1854 Dec 27	Teneriffe Mts. (near Plato): 5 hr	Two luminous fiery spots on bright side. "...an appearance I had never seen before on the surface of the moon though I have observed her often these last 40 years.... It appeared to me from the brightness of the light and the contrast of colour, to be two active volcanoes or 2 <u>mouths of one in action.</u> "	Hart	Hart 1855
96	1855 Jun 20		Traces of twilight seen. Webb gives low weight to observation "for want of better optical means."	Webb	Webb 1962 ed., p. 97
97	1862 Jun 12, 06 ^h 19 ^m		"During [lunar] eclipse, the E [IAU:W] side dark brick red and something seemed to oscillate before it." At mid-eclipse on the S side, "a very small meniscus was seen nearly the color of the uneclipsed moon."		Liais 1865
98	1864 May 15 and Oct 16	Mare Crisium, E of Picard	Bright cloud.	Ingall	Ingall 1864
99	1864		Bright spot.	Birt	Birt 1864
100	1865 Jan 1	SE of Plato; 30 min	Bright spot like 4th mag star slightly out of focus. Bright speck remained changeless for 30 min, and its light was steady.	Grover	Grover 1866; Webb 1962 ed., p. 114
101	1865 Apr 10	Mare Crisium, E of Picard	Point of light like star. Whole of Mare Crisium intersected with bright veins, mixed with bright spots of light. Aperture 4-1/2 in.; 4 hr before full moon.	Ingall	<u>Astr. Reg.</u> 1866
102	1865 Sep 5	Mare Crisium, E of Picard	Point of light like star, with misty cloud.	Ingall	<u>Astr. Reg.</u> 1866
103	1865 Nov 24	Carlini; 1 hr 30 min	Dark side, distinct bright speck like 8th mag star.	Williams and two others	Webb 1962 ed., p. 125

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
104	1865	Mare Crisium	Dots and streaks of light.	Slack, Ingall	Webb 1962 ed., p. 105
105	1866 Jun 10	Aristarchus	Starlike light.	Tempel	Denning, <u>Tel. Work</u> , p. 121
106	1866 Jun 14-16	Aristarchus, vicinity	Reddish-yellow.	Tempel	Tempel 1867
107	1866	Dark side	Bright spots.	Hodgson	Hodgson 1866
108	1867 Apr 9, 19 ^h 30 ^m - 21 ^h 00 ^m	Aristarchus, vicinity; 1 hr 30 min	Bright spot on dark side, 7th mag, becoming fainter after 20 ^h 15 ^m UT.	Elger	Elger 1868
109	1867 Apr 12, 07 ^h 30 ^m - 08 ^h 30 ^m	Aristarchus, vicinity; 1 hr	Bright spot on dark side, 7th mag.	Elger	Webb 1962 ed., p. 93
110	1867 May 6-7	Aristarchus; at least several hours each night	Left side of crater, very bright luminous point, appearing like a volcano.	Flammarion	Flammarion 1884
111	1867 May 7	Aristarchus, vicinity	Reddish-yellow, beacon-like light.	Tempel	Tempel 1867; <u>Astr. Reg.</u> 1868
112	1867 Jun 10	Sulpicius Gallus	Three blackish spots.	Daves	<u>The Student Vol.</u> 1
113	1867	Dark side	Bright spots.	W. O. Williams	Williams 1867
114	1870 May 13	Plato	Bright spots, extraordinary display.	Pratt, Elger	<u>Rept. Brit. Assn.</u> 1871
115	1870		White spots on the moon: "lightning".	Birt	Birt 1870
116	1870	Godin	Purplish haze illuminating floor of crater, still in shadow.	Trouvelot	Trouvelot 1882; Moore 1963
117	1871	Plato	Streak of light across floor while crater in shadow.	Elger	<u>Sirius</u> 1887
118	1871	W of Plato	Fog or mist.	Elger, Nelson	Flammarion 1884
119	1872 Jul 16	Plato	NE portion of floor hazy.	Pratt	Capron 1879
120	1873 Jan 4	Kant	Luminous purplish vapors.	Trouvelot	Trouvelot 1882; Flam- marion 1884; Moore 1963

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
121	1873 Apr 10	Plato	Under high sun, two faint clouds in W part of crater.	Schmidt	<u>Sirius 1879</u>
122	1873 Nov 1	Plato	Unusual appearance.	Pratt	Capron 1879
123	1874 Jan 1	Plato	Unusual appearance.	Pratt	Capron 1879
124	1877 Feb 20, 09 ^h 30 ^m - 10 ^h 30 ^m	Eudoxus; 1 hr	Fine line of light like luminous cable drawn W to E across crater.	Trouvelot	Flammarion 1884; <u>l'Astron.</u> 1885
125	1877 Feb 27, 19 ^h 19 ^m		Lunar eclipse. Flickering light on lunar surface.	Dorna	<u>l'Opin. Nazion.</u> 1877
126	1877 Mar 17, 06 ^h 45 ^m		Moon's horns showed trace of atmosphere. Moon 2 ^d 16 ^h old (2.75-in. reflector).	Dennett	<u>Eng. Mech.</u> 1882
127	1877 Mar 21	Proclus	Brilliant illumination.	Barrett	<u>Eng. Mech.</u> 1882
128	1877 May 15, 20 ^h 30 ^m and May 29, 00 ^h 35 ^m	E of Picard	Bright spot.		<u>Eng. Mech.</u> 1882
129	1877 Jun 17, 22 ^h 30 ^m	Bessel	Minute point of light (seen with 2.75-in. reflector).	Dennett	<u>Eng. Mech.</u> 1882
130	1877 Jul 29	Plato	S of center of crater, bright streak, disappeared at 2:30 a.m.	Gray	Flammarion 1884
131	1877 Aug 23-24, 23 ^h 10 ^m		Lunar eclipse. (1) Unusual spectrum with strong absorption in yellow. (2) Two patches of crimson light of short duration.	(1) Airy; (2) Capron, Pratt	(1) <u>Sirius</u> 1878; (2) Capron 1879
132	1878 Feb 2, 08 ^h 16 ^m	At limb	Changes in spectrum during solar eclipse suggesting lunar atmosphere.	Observers at Melbourne, Australia	<u>Sirius</u> 1878
133	1878 Mar 10, 19 ^h 20 ^m	Mare Crisium	White patch E of Picard badly defined.	Noble	<u>Sel. J.</u> 1878
134	1878 Oct 5, 21 ^h 40 ^m	Plato	Faint bright shimmer like thin white cloud.	Klein	<u>Klein, Woch. für Astr.</u> ; <u>Sirius</u> 1878
135	1878 Oct 21	3 hr	Half of moon's terminator obliterated.	Hirst	Capron 1879
136	1878 Nov 1	Messier	Obscuration of Messier.	Klein	<u>Pop. Astr.</u> 1902

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
137	1878 Nov 9, 21 ^h 00 ^m	Plato	Faint but unmistakable white cloud, not seen before.	Klein	<u>Sirius</u> 1879
138	1878 Dec 4	Agrippa, Klein's Object and the oval spot nearby	"Odd misty look as if vapour were in or about them."	Capron	Capron 1879
139	1878	E of Picard	White patch.	Birt	<u>Eng. Mech.</u> Vol. 28
140	1878	Interior of Tycho	Cloudy appearance.	Birt	<u>Eng. Mech.</u> Vol. 28
141	1880 Jan 18	Whole of Mare Nectaris	Foggy. Fog extended into the floor of Fracastorius. Gruithuisen said that the seeing was unsatisfactory.	Gaudibert	Gaudibert 1880
142	1881 Feb 3, 19 ^h 00 ^m	Aristarchus (on dark side, limb area)	Very bright (~8.0 mag star) with pulsations.	"Gamma" ⁶	<u>Sirius</u> 1881
143	1881 ² Jul 4, 00 ^h 30 ^m		"Two pyramidal luminous protuber- ances appeared on the moon's limb These points were a little darker than the rest of the moon's face. They slowly faded away"	Several observers	<u>Sci. Amer.</u> 1882
144	1881 Aug 6-7	Aristarchus region	Whole region between Aristarchus and Herodotus and S part of Great Rille (Schröter's Valley) appeared in strong violet light as if covered with fog.	Klein	Klein 1902
145	1881 Dec 5, 17 ^h 09 ^m	Aristarchus	During eclipse, Aristarchus was a white spot in the coppery disk and continued so. (Lunar eclipse.)	S. J. Johnson	Johnson 1882; Fisher 1924
146	1882 Jan 29, 17 ^h 00 ^m - 17 ^h 30 ^m	Eudoxus; 30 min	Unusual shadow.		<u>Sirius</u> 1882
147	1882 Feb 27, 18 ^h 30 ^m - 19 ^h 30 ^m and 20 ^h 30 ^m - 20 ^h 45 ^m	Eudoxus; 1 hr, and 15 min	Unusual shadow (on Feb 25, the shadow was normal).		<u>Sirius</u> 1882
148	1882 Mar 27, 18 ^h 45 ^m	Plato	Floor glowed with milky light.	A. S. Williams	Williams 1882

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
149	1882 Apr 24	Near Godin and Agrippa	Shadows blurred and oscillating. Shadows in Aristoteles steady. Intervals between obscurations, ~10 min.	Ridd	<u>Proc. Liverpool Astr. Soc.</u> 1883
150	1882 May 19	Just E of Mare Crisium against Prom. Agarum	Cloud, not less than 100 mi x 40 or 50 mi; no trace seen on May 20.	J. G. Jackson and friends	<u>Eng. Mech.</u> 1882; <u>Strol. Astr.</u> 1966; <u>B.A.A. Lunar Sec. Circ.</u> 1966, <u>I</u> , No. 8
151	1882 Jul 17	Just E of Mare Crisium, against Prom. Agarum	Feathery mist or cloud.	J. G. Jackson	<u>Strol. Astr.</u> 1966
152	1882 Nov 7, 09 ^h 00 ^m	Dark limb	Line of light around dark limb, attributed to atmosphere, well seen, equally bright throughout length. Age of moon 26.5 days.	Hopkins	<u>Sirius</u> 1884
153	1883 Mar 12, 20 ^h 00 ^m	Dark limb	Line of light (see 1882 Nov 7), well seen.	Hopkins	<u>Sirius</u> 1884
154	1883 Mar 12	Tarantius and environs	Peculiar blurred appearance. Unmistakable variations in the sharpness of the shadows of the ring plain.	Davies	<u>Proc. Liverpool Astr. Soc.</u> 1883; <u>B.A.A. Lunar Sec. Circ.</u> 1966, <u>I</u> , No. 10
155	1883 May	Edge of Mare Crisium	Light mist or cloud.	J. G. Jackson	<u>Flammarion</u> 1884
156	1883 Nov 5, ~18 ^h 00 ^m	Aristarchus	Very bright (~7.0-8.0 mag star).	"R" _r ⁶	<u>Sirius</u> 1883
157	1884 Feb 5	Kepler	Illumination in Kepler.	Morales	<u>I'Astron.</u> Vol. 9
158	1884 Oct 4, ~22 ^h 03 ^m	Tycho	During eclipse, bright spot like a star of the 2nd mag. (Lunar eclipse.)	Parsehian	<u>Parsehian</u> 1885; <u>Fisher</u> 1924
159	1884 Nov 29, 19 ^h 00 ^m - 21 ^h 00 ^m	Aristarchus; 2 hr	Nebulous at center; elsewhere features well defined.	Hislop	<u>Sirius</u> 1885

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
160	1885 Feb 19	Small crater near Hercules	Small crater was dull red with vivid contrast.	Gray	<u>I'Astron.</u> Vol. 4; <u>Knowledge</u> Vol. 7
161	1885 Feb 21	Cassini	Red patches.	Knopp	<u>I'Astron.</u> Vol. 4
162	1886 Jun 10	Aristarchus	Starlike light.	Tempel	<u>Pop. Astr.</u> 1932
163	1886 Sep 6	Plato	Streak of light on dark floor of crater in shadow. (67 mm refl.)	Valderama	<u>Sirius</u> 1887
164	1887 Feb 1, ~17 ^h 00 ^m 4	Plato	Appearance of light in crater.	Krüger	<u>Sirius</u> 1887
165	1887 Feb 2	La Hire	Intense yellow streak that cast shadows around neighboring features.	Klein	<u>Sirius</u> 1903
166	1888 Jul 15	S edge of Alps on dark side of moon	"Lunar volcano"; ~1 mag star. Yellow light tinged with red from refractor's secondary spectrum.	Holden	<u>Sirius</u> 1888
167	1888 Nov 23, 17 ^h 15 ^m 4	45 min	A triangular patch of light (seen with 3 1/2-in. refractor and 180X mag).	von Speissen and others	<u>Sirius</u> 1888
168	1889 Mar 30	Copernicus	Black spot.	Gaudibert	<u>I'Astron.</u> 1889
169	1889 May 11	Gassendi	Black spot on rim.		<u>I'Astron.</u> 1889
170	1889 Jun 6, 22 ^h 00 ^m	Plato B and D (Schmidt's designation)	Two extremely bright spots (8-in. refractor).	Evon Lade	<u>Sirius</u> 1889
171	1889 Jul 12, ~20 ^h 52 ^m	Aristarchus	During lunar eclipse, brilliance in surrounding gloom was striking.	Krueger	Krueger 1889; Fisher 1924
172	1889 Sep 3	Alpetragius; 30 min	"Central peak, its shadow and all the floor seem to be seen through haze."	Barnard	Barnard 1892
173	1889 Sep 13	Plinius	White spot over central peak.	Thury	Thury 1889a, 1889b
174	1889 Oct 3-4	Alpetragius	Hazy.	Barnard	Barnard 1892
175	1890 Oct 3, ~22 ^h 00 ^m	Posidonius	Unusual shadow.	Meller	<u>Sirius</u> 1890
176	1891 May 23, ~18 ^h 20 ^m	Aristarchus region	Lunar eclipse, half hour before end of totality, Aristarchus and region immediately N of it became con- spicuous and increased in brightness from that time on.	W. E. Jackson	Jackson 1890-91; Fisher 1924

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
177	1891 Sep 16	Schröter's Valley	"Dense clouds of white vapour were apparently arising from its bottom and pouring over its SE [IAU:SW] wall in the direction of Herodotus."	W. H. Pickering	Pickering 1903
178	1891 Sep 17, 18, 23, 25	Schröter's Valley	Apparent volcanic activity.	W. H. Pickering	Pickering 1903
179	1891 Oct 14	Schröter's Valley	Apparent volcanic activity.	W. H. Pickering	Pickering 1903
180	1891 Nov 7	Aristarchus	Very distinct luminous point.	d'Adjuda	<u>I'Astron.</u> Vol. 11
181	1892 Mar 31	Thales	Pale luminous haze.	Barnard	Barnard 1892
182	1892 May 10	Schröter's Valley	Apparent volcanic activity.	W. H. Pickering	Pickering 1903
183	1892 May 11, ~22 ^h 53 ^m		During partial lunar eclipse, extension of earth's shadow beyond the cusps.		<u>Sirius</u> 1892
184	1893 Jan 30	Schröter's Valley	Apparent volcanic activity.	W. H. Pickering	Pickering 1903
185	1893 Apr 1		Shaft of light.	de Moraes	<u>I'Astron.</u> Vol. 13
186	1894 Feb 23	Henke (now Daniell) and N wall of Posidonius	Strong brownish-red coppery hue in Henke and also on N wall of Posidonius.	Krieger	<u>Sirius</u> 1895
187	1895 Mar 11, 03 ^h 42 ^m		During lunar eclipse, very striking color in SE quadrant.	Foulkes	<u>B.A.A. Mem.</u> 1895
188	1895 May 2, (1)~20 ^h 45 ^m ; (2)~23 ^h 30 ^m	Plato; (1)~12-14 min	(1) Streak of light. (2) Bright parallel bands in center.	(1) Brenner; (2) Fauth	(1) <u>Sirius</u> 1895, 1897; (2) <u>Sirius</u> 1896, 1897
189	1895 Sep 25		Shaft of light.	Gaboreau	<u>I'Astron.</u> Vol. 13
190	1896	Macrobius	Penumbral fringe to shadow.	Goodacre	Firsoff 1962 ed., p. 90
191	1897 Jun 14	Schröter's Valley	Apparent volcanic activity.	W. H. Pickering	Pickering 1903
192	1897 Sep 21, 23 ^h 00 ^m	Aristarchus	Glimmering streaks.	Molesworth	Goodacre 1931
193	1897 Oct 8, 10, 13, 15	Schröter's Valley	Apparent volcanic activity.	W. H. Pickering	Pickering 1903
194	1897 Dec 9	Wm. Humboldt	Light chocolate border to shadow on E wall.	Goodacre	<u>B.A.A. Mem.</u> 1898

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
195	1898 Jan 8, 00 ^h 30 ^m	Tycho region	About mid-eclipse, shadow so dense that details of surface disappeared entirely, except that bright ray extending SSW from Tycho was clearly visible throughout its whole extent and continued so throughout eclipse. (Lunar eclipse.)	Chevremont	Chevremont 1898; Fisher 1924
196	1898 Apr 6-8	Schröter's Valley	Apparent volcanic activity.	W. H. Pickering	Pickering 1903
197	1898 Jul 3 21 ^h 47 ^m	Proclus	Half hour after mid-eclipse, the crater shone with reddish light in shadow. (Lunar eclipse.)	Moye	Moye 1898; Fisher 1924
198	1898 Dec 27, ~23 ^h 38 ^m	Aristarchus	During eclipse, Aristarchus brilliant. (Lunar eclipse.)	Stuyvaert	Niessen and Stuyvaert 1898-99; Fisher 1924
199	1901 Oct 25	Marius	A number of light streaks noticed on the crater floor. (Usually none are seen.)	Bolton	Bolton 1901
200	1902 Aug 13, 00 ^h 50 ^m	Near Lambert	(1) Brilliant starlike point; (2) completely round bright area, on dark side of moon's terminator, mag 3 or 4.	Jones	(1) Pickering 1902; (2) <u>Sirtius</u> 1903
201	1902 Oct 16	Theaetetus	Cloud near Theaetetus.	Charbonneaux	Charbonneaux 1902
202	1903 Mar 1	Aristarchus	Intermittent light "like a little star."	Rey	Rey 1903
203	1903 Mar 3	Aristarchus	Intermittent light "like a little star."	Gheury	Bull. Soc. Astr. France 1903
204	1904 Jul 31	Plato	Bright hazy object 2" diameter on crater floor.	Pickering	Pickering 1906
205	1904 Oct 2, 13 ^h 00 ^m ; 16 ^h 00 ^m	Plato	Total or partial obscuration of crater floor.	Elger, Klein, Hodge, Goodacre	Goodacre 1931; Webb 1962 ed.; Green 1965
206	1905 Feb 19, ~19 ^h 03 ^m	Aristarchus	During eclipse, bright spot shining in the dark as a little star. (Lunar eclipse.)	Moye	Moye and Russell 1905; Fisher 1924
207	1905 Aug 15, ~03 ^h 39 ^m	Tycho	Visible, even brilliant during eclipse.	Rey	Sforza 1905; Fisher 1924

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
208	1906 Aug 4, ~12 ^h 58 ^m	Aristarchus	Shone conspicuously during lunar eclipse.	Ward	Ward 1906-07; Fisher 1924
209	1906	Mare Humorum		Flammarion	Azevado 1962
210	1906	Mare Serenitatis		Dubois, Flammarion	Azevado 1962
211	1906	Lichtenberg		Flammarion	Azevado 1962
212	1906	Alphonsus		Flammarion	Azevado 1962
213	1907 Jan 22	Plato	Glow of light in part of Plato.	Fauth	Fauth 1907
214	1909	Tycho	False dawn.	Mellish	Mellish 1909
215	1909	Mersenius	Dimly lighted zone W of shadow.	Merlin	Merlin 1909
216	1912 Apr 1, ~22 ^h 15 ^m	Tycho	Visible like a bright spot standing out in the dark slate-gray shadow. Only Tycho was seen during lunar eclipse.	LeRoy	LeRoy 1912; Fisher 1924
217	1912 May 19	Dark side	Small red glowing area noticed on shadow side of moon.	Valier	Valier 1912
218	1912 May 20	Leibnitz Mts. area	Glowing line of light into dark side.	Franks	Franks obs. book
219	1912 Sep 25	Pico B	Haze spreading from W end of crater.	Pickering	Rawstron 1937
220	1913 Mar 22, ~11 ^h 57 ^m		During eclipse totality, there remained visible to the NW only a luminous point not much larger than the planet Mars and of the same color. (Lunar eclipse.)	G. Jackson	Jackson 1913; Fisher 1924
221	1913 Jun 15	South	Distinct small reddish spot.	Maw	Webb 1962 ed.
222	1915 Jan 31	Littrow	Seven white spots arranged like a Greek gamma.	Burgess	Eng. Mech. Vol. 101
223	1915 Apr 21	S of Posidonius	Noticed special occurrence S of large circle Posidonius which he took as evidence of water vapor.	Houdard	Houdard 1917
224	1915 Apr 23	Clavius	Narrow, straight beam of light from crater A to crater B.	Cook	B.A.A. Mem. 1916
225	1915 Dec 11	Mare Crisium	Particularly bright spot like star on N shore.	Thomas	Eng. Mech. Vol. 103

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
226	1916 Oct 10	Plato	Pickering's craterlet No. 59 involved in reddish shadow and disappeared. Usually distinctly seen under similar illumination.	Maggini	<u>Sci. Amer.</u> 1919
227	1917 Jan 8, ~07 ^h 45 ^m	Dionysius	Point on rim of crater shone like a small star for sometime after entering the eclipse shadow. (Lunar eclipse.)	W. F. A. Ellison	Ellison 1917; Fisher 1924
228	1919 Nov 7, ~23 ^h 45 ^m	Tycho, vicinity	Long ray in direction of Longo-montanus remained visible glowing in weak gray-green light during whole eclipse (until clouds stopped observation). (Lunar eclipse.)	Fock	Fock 1920; Fisher 1924
229	1920	Near Vitruvius	Some peaks varied considerably in brightness.	Franks	Wilkins and Moore 1958
230	1922 Nov 28	La Hire; 20 min	Shadow cut through by white streak.	H. P. Wilkins	Wilkins 1954
231	1927 May 12	Peirce A (Wilkins' Graham)	Complete obscuration of crater.	H. P. Wilkins	Moore 1953; Green 1965
232	1927 Dec 23, 22 ^h 00 ^m	Peirce A (Wilkins' Graham)	Invisible.	H. P. Wilkins	H. P. Wilkins obs. book
233	1931 Feb 22	Aristarchus	Reddish-yellow.	Joulia	Joulia 1931
234	1931 Mar 27	Tycho	Central mountain gray although crater interior was in full shadow.	Barker	Moore 1953; Green 1965
235	1931	Aristarchus	Bluish glare.	Goodacre, Molesworth	Goodacre 1931
236	1932 Apr 15, 06 ^h 57 ^m	Plato	Sudden appearance of white spot like cloud.	Goddard and friend	<u>Pop. Astr.</u> 1932
237	1933 Mar 30	Aristarchus region	White.	Douillet	Douillet 1933
238	1933 Sep 1	Neighborhood of Pico, and Pico B	Haze observed.	Rawstron	Rawstron 1937
239	1933 Oct 1	Neighborhood of Pico, and Pico B	Haze observed.	Rawstron	Rawstron 1937
240	1936 May 4	Eratosthenes	Detected small bright spots on crater floor.	Martz	Haas 1942

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
241	1936 Oct 4	Eratosthenes	Many small bright spots on crater floor, some of which Martz detected, but Johnson drew bright bands in their positions.	Haas	Haas 1942
242	1936 Oct 25	Eratosthenes	Small bright spots on floor of crater.	Haas	Haas 1942
243	1937 Feb 14	Cassini	Bright spot.	Andrenko	Azevado 1962
244	1937 Sep 17	Aristarchus	Bright streak.	H. M. Johnson	Haas 1942
245	1937 Sep 28	Riccioli	Color of dark area was deep purple; next night same with vivid hue.	Haas	Haas 1942
246	1937 Oct 26	Alphonsus, Herschel, and Ptolemaeus	Milky floors.	Alter	Alter 1959
247	1937 Dec 12	Plato	Strongly marked streak of orange-brown on E wall.	Barker	Barker 1940
248	1938 Jan 16-17	Plato	Brownish gold-veined surface of color irregularly laid on smooth floor of crater.	Barker	Barker 1940
249	1938 Feb 14	Plato	Golden-brown spot on E wall very prominent, with a yellowish glow without a definite boundary spreading over floor of crater.	Fox	Barker 1940
250	1939 Feb 23	Aristarchus	Bright spot.	Andrenko	Azevado 1962
251	1939 Mar 29, 19 ^h 00 ^m	Copernicus: 15 min	Central mountain group seen distinctly as diffuse light spot. Sunrise on peaks did not begin until 22 ^h 00 ^m .	Wilkins	Wilkins 1954
252	1939 Aug 2, 00 ^h 10 ^m	Schickard	Dense fog.	Moore	Wilkins and Moore 1958; Firsoff 1962 ed., p. 80
253	1939 Oct 19	Macrobius	Floor of crater reddish-brown, a hue ordinarily absent.	Barcroft	Haas 1942
254	1939 Dec 27	Aristarchus	Slight bluish tinge on the still brilliant W wall.	Barcroft	Haas 1942; Firsoff 1962 ed., p. 84
255	1940 May 20, 20 ^h 00 ^m	Schickard	Whitish obscuration; less dense than 1939 Aug 2.	Moore	Moore obs. book

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
256	1940 Jun 14	Plato	Two hazy streaks of medium intensity, much complex detail.	Haas	Haas 1942
257	1940 Jul 14	Tycho	Curious faint milky-looking luminosity seen. Luminous marks in shadow were ragged-edged and irregularly shaped.	Haas	Haas 1942
258	1940 Oct 19	Lichtenberg area	Pronounced reddish-brown or orange color around area. Found color less marked next night, and slight by Oct 22.	Barcroft	Haas 1942; <u>Strol.</u> <u>Astr.</u> 1951
259	1940 Oct 29	Cusps	Prolongation of N horn by 15 degrees.	Vaughan	Firsoff 1962 ed., p. 127
260	1940 Dec 2	Aristarchus	Distinguished crater in dark hemisphere as a bright spot.	Vaughan	Haas 1942
261	1940 Dec 9	Tycho	Found some luminosity on W crater rim of W outer slope.	Barcroft	Haas 1942
262	1940 Dec 25	Cusps	"Each horn appeared prolonged by about 10 degrees."	Haas	Firsoff 1962 ed., p. 127
263	1941 Jan 6	Arzachel	Anomalous shadow.	Barcroft	Azevado 1962; Wilkins 1954
264	1941 Feb 6	Conon	Faint bright spot, not too definite in outline, seen on crater floor.	Vaughan	Haas 1942
265	1941 Mar 6	Cusps	Prolongation suspected.	Barcroft	Firsoff 1962 ed., p. 127
266	1941 Mar 31	Aristarchus	Crater perceived by earthshine (Haas thought it must have been unusually brilliant).	Barcroft	Haas 1942
267	1941 Jul 10	Gassendi, and near Hansteen	Moving luminous speck near Hansteen; estimated diameter 0.1", mag +8 (lunar meteor?).	Haas	Wilkins and Moore 1958, p. 281; Azevado 1962
268	1942 Feb 2, • 18 ^h 20 ^m - 19 ^h 15 ^m	W of Kepler; 55 min	Whitish glow near earthlit limb.	Y. W. I. Fisher	Wilkins and Moore 1958, p. 271
269	1942 Aug 26	Atlas	Dark areas faded in crater.	Haas	Haas 1965
270	1944 Apr 4	Hyginus N (Klein N)	Much darker than usual.	Wilkins	Moore 1953, p. 144; Green 1965

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
271	1944 Aug 12, 23 ^h 00 ^m	Plato	Exceptional darkness of crater floor, three light spots noted at foot of E wall. Although no light streaks were visible, there was a large and conspicuous spot near the center. Since this spot has been noted as slightly but definitely rimmed all round, Wilkins suggested that temporary dark cloud or vapor may have covered true floor up to level of rim.	Wilkins	Wilkins 1944
272	1944 Aug 31	Schickard	Mist on crater floor.	Wilkins	Wilkins and Moore 1958
273	1945 Oct 19, 11 ^h 23 ^m 50 ^s	Plato	Bright flash on crater floor near E Wall.	Thornton	Green 1965; Thornton 1945
274	1945 Oct 19	Darwin	Three brilliant points of light on wall.	Moore	Wilkins 1954
275	1947 Jan 30	Eratosthenes	Without normal shadow.	H. Hill	Wilkins and Moore 1958
276	1947 Aug 28	SE of Langrenus	Mountain on limb very decidedly bluish.	Baum	Wilkins 1954
277	1947 Nov 30	Aristarchus	Bright spots on inner W slopes.	Favarger	Wilkins 1954
278	1948 Feb 17	Dawes	Central peak not seen, but cleft-like marking from SW crest towards E shadow.	Thornton	Contrib. by Moore
279	1948 Apr 14		Prolongation of southern cusp.	Wilkins	Wilkins 1954
280	1948 Apr 15	30 degrees N of Grimaldi on W limb	Bright spot on earthlit W limb 30 degrees N of Grimaldi and estimated equal to a 3rd mag star.	Vince	J.B.A.A. 1948
281	1948 May 20	NE of Philolaus; 15 min	Red glow.	Baum	Firsoff 1962 ed., p. 82
282	1948 Jul 21-22	Mare Crisium; several hours	Almost featureless apart from Picard, Peirce.	Moore	Moore obs. book
283	1948 Jul 27	Promontorium Heracles	Blurred and misty.	Moore, Docherty	Moore obs. book
284	1948 Aug 8	Dark side	A small bright flash on earthlit portion . . . like a bright sparkle of frost on the ground.	Woodward	Moore 1953
285	1948 Aug 16	E of Picard; several hours	Two areas E of Picard appeared featureless.	Moore	J.B.A.A. 1949
286	1948 Oct 8	Barker's Quadrangle	Nebulous white patch in place of Quadrangle.	Moore	Moore obs. book

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
287	1948 Oct 19	Promontorium Heracides	Blurred.	Docherty	Contrib. by Moore
288	1949 Feb 7, 18 ^h 00 ^m	Kepler	White glow near Kepler.	Y. W. I. Fisher	Contrib. by Moore
289	1949 Feb 9	Barker's Quadrangle	Quadrangle not seen . . . appeared misty.	Moore	Moore obs. book
290	1949 Feb 10	Schröter's Valley, near Cobrahead	Diffuse patch of thin smoke or vapor from W side of Schröter's Valley near Cobrahead, spreading into plain; detail indistinct, hazy (surrounding area clear).	Thornton	Wilkins and Moore 1958, p. 263
291	1949 Mar 3, 20 ^h 00 ^m	Barker's Quadrangle	Whole area hazy.	Moore	Moore obs. book
292	1949 May 1	Aristarchus	Visible in earthshine, glowing suddenly as diffuse light patch.	Wilkins	Wilkins 1954
293	1949 Oct 7, 02 ^h 54 ^m	Aristarchus	Abnormally bright during lunar eclipse.	G. Brown, Hare	Contrib. by Moore
294	1949 Nov 3, 01 ^h 06 ^m	Aristarchus	Blue glare, base inner W wall.	Bartlett	Bartlett 1967
295	1950 Jun 27, 02 ^h 30 ^m	Aristarchus	Blue glare, base inner W wall.	Bartlett	Bartlett 1967
296	1950 Jun 27	Herodotus	Bright point in crater.	Bartlett	Strol. Astr. 1962
297	1950 Jun 28, 03 ^h 27 ^m	Aristarchus	Blue glare, rim of W wall.	Bartlett	Bartlett 1967
298	1950 Jun 29, 05 ^h 30 ^m	Aristarchus	Strong bluish glare; E, SE wall.	Bartlett	Bartlett 1967
299	1950 Jul 26, 02 ^h 52 ^m	Aristarchus	Blue glare, base inner W wall.	Bartlett	Bartlett 1967
300	1950 Jul 31, 04 ^h 50 ^m	Aristarchus	Violet glare, E, NE rim.	Bartlett	Bartlett 1967
301	1950 Aug 28, 04 ^h 25 ^m	Aristarchus	Intense blue-violet glare; E wall bright spot, E, NE rim.	Bartlett	Bartlett 1967
302	1951 Jan 21	E of Lichtenberg	Red patch.	Baum	Strol. Astr. 1951

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
303	1951 Feb 4, 21 ^h 00 ^m - 23 ^h 00 ^m	W of Endymion; 2 hr	Mist over peak.	Baum	Baum 1966
304	1951 May 17	Gassendi	Bright speck of short duration.	Wilkins	Moore 1953, p. 118
305	1951 Aug 20	W. H. Pickering (Messier A)	Brilliant white patch inside crater.	Moore	Moore 1953, p. 147
306	1951 Oct 20	W. H. Pickering (Messier A)	Bright circular patch.	Moore	Moore obs. book
307	1952 Apr 3		Twenty-one spots were charted, one surrounded by a light area, while three streaks were seen in the NW quarter.	Wilkins, Moore	Wilkins and Moore 1958
308	1952 Apr 4	Plato	Obscuration of crater floor.	Cragg	Moore 1953, 1965
309	1952 Sep 9, 23 ^h 00 ^m	Calippus	Broad hazy band of light across floor (observer gave observation low weight).	Moore	Moore obs. book
310	1952 Dec 24	Theaetetus	Hazy line of light.	Moore	Wilkins and Moore 1958, p. 238
311	1953 Apr 18		Faint extension of cusps.	Wilkins	Wilkins 1954
312	1953 Nov 15 ^s , 02 ^h 00 ^m	Near Pallas	Very bright spot on illuminated part near terminator seen and photographed.	Stuart	<u>Strolling Astr.</u> 1956; Stuart 1957
313	1954 Mar 23	Atlas	Violet tint in Atlas.	Delmotte	Delmotte
314	1954 May 10	Crater in Ptolemaeus	Flash.	Firsoff	Firsoff 1962 ed., p. 53
315	1954 May 11, 20 ^h 00 ^m	Eratosthenes	Central mountain group invisible, though surrounding details were clear.	Cattermole	Contrib. by Moore
316	1954 Jul 14, 04 ^h 39 ^m	Aristarchus	E wall bright spot; violet glare.	Bartlett	Bartlett 1967
317	1954 Jul 16, 05 ^h 35 ^m	Aristarchus	Whole interior of strong violet tint; violet tint in nimbus and N and NE of crater.	Bartlett	Bartlett 1967
318	1954 Jul 17, 07 ^h 05 ^m	Aristarchus	Pale violet tint on surface NE of crater; no color elsewhere.	Bartlett	Bartlett 1967
319	1954 Jul 24, 07 ^h 19 ^m	Aristarchus	Crater filled with pale violet light.	Bartlett	Bartlett 1967

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
320	1954 Aug 11, 22 ^h 00 ^m	Aristarchus	Brilliant in red (filter), variable.	Firsoff	Firsoff 1966
321	1954 Aug 18	Aristarchus	Brilliant blue-violet glare over E and NE walls.	Bartlett	Contrib. by Moore
322	1954 Sep 8, 20 ^h 00 ^m	Proclus	Brightness variation in blue light.	Firsoff	Firsoff 1962 ed., p. 83
323	1954 Oct 8, 10	Timocharis	Red glow.	Firsoff	Firsoff 1962, 1966
324	1954 Oct 11, 04 ^h 57 ^m	Aristarchus	Violet tint on floor, E wall and central peak; intermittent.	Bartlett	Bartlett 1967
325	1954 Oct 12, 01 ^h 32 ^m	Aristarchus	Pale violet radiance; S wall, SE, E, NE walls; central peak.	Bartlett	Bartlett 1967
326	1954 Oct 12, 04 ^h 09 ^m	Aristarchus	Strong violet tint E half of floor; very faint W half of floor and W wall. Dark violet in nimbus; pale violet on plateau.	Bartlett	Bartlett 1967
327	1954 Oct 13, 02 ^h 00 ^m	Aristarchus	Bright blue-violet glare, E rim; pale violet radiance within crater and around S wall bright spot. Dark violet in nimbus; pale violet on plateau.	Bartlett	Bartlett 1967
328	1954 Oct 13, 05 ^h 15 ^m	Aristarchus	Scarcely perceptible violet radiance within crater; wall bands look faint.	Bartlett	Bartlett 1967
329	1954 Oct 18, 06 ^h 47 ^m	Aristarchus	Strong blue-violet glare, E wall bright spot, E wall and on central peak.	Bartlett	Bartlett 1967
330	1954 Nov 5	Copernicus	Bright point.	Johnstone	Strol. Astr., 1962
331	1954 Nov 7, 23 ^h 20 ^m	Kepler	Bright point just outside E wall.	Lugo	J.B.A.A. 1955
332	1954 Nov 12, 02 ^h 42 ^m	Aristarchus	Blue-violet glare; E wall bright spot and whole length of E wall. Suspected violet tint in N and NE of crater; certain on plateau. Greatly faded by 05 ^h 07 ^m .	Bartlett	Bartlett 1967

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
333	1954 Dec 12, 02 ^h 44 ^m	Aristarchus	Strong violet glare, E rim, changing to brown.	Bartlett	Bartlett 1967
334	1955 Jan 8, 00 ^h 46 ^m	Aristarchus	Strong violet glare whole length of E rim; brightest SE and around E wall bright spot.	Bartlett	Bartlett 1967
335	1955 Jan 12, 04 ^h 54 ^m	Aristarchus	Blue-violet glare; E wall bright spot, E, NE rim.	Bartlett	Bartlett 1967
336	1955 Apr 2, 03 ^h 20 ^m - 05 ^h 00 ^m	Straight-wall region; ~1 hr 40 min	Small craters between Birt and fault invisible at times under excellent seeing conditions, while craters on E side were continually observed.	Capen	Capen 1955, 1967
337	1955 Apr 5, 03 ^h 20 ^m	Aristarchus	E wall and glacies; violet; uncertain.	Bartlett	Bartlett 1967
338	1955 Apr 24	Near Posidonius	White flash of short duration N of Mare Serenitatis near Posidonius.	Wykes	<u>Strol. Astr.</u> 1955
339	1955 May 5, 03 ^h 30 ^m	Aristarchus	Pale violet tint in E half of floor; violet band at base, E side of central peak.	Bartlett	Bartlett 1967
340	1955 May 7-8	Lichtenberg		Nicolini	Azevado 1962
341	1955 May 24	Near South Pole	"Glitter" suggesting electrical discharge.	Firsoff	Firsoff 1962 ed., p. 131
342	1955 Jun 25, 20 ^h 30 ^m	Theophilus	Mistiness; absent the next night.	Firsoff	Firsoff 1962 ed., p. 84
343	1955 Jul 3, 22 ^h 00 ^m	Schröter's Valley	Starlike point.	Firsoff	Firsoff 1962 ed., Pl. X
344	1955 Jul 13	Aristarchus	Brilliant in blue and green.	Firsoff	Firsoff 1966
345	1955 Aug 3, 04 ^h 50 ^m	Aristarchus	Plateau only; pale violet tint.	Bartlett	Bartlett 1967
346	1955 Aug 3	Manilius, Timocharis	Manilius extraordinarily brilliant; Timocharis bright in blue, appears large and diffuse.	Firsoff	Firsoff 1966

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
347	1955 Aug 26	Near Carpathians; ~35 sec	Bright flare on dark side similar to 2nd mag star.	McCorkle	<u>Sky and Tel.</u> 1955
348	1955 Aug 30, 03 ^h 40 ^m	Aristarchus	Floor, base inner W wall, NW wall; faint bluish glare.	Bartlett	Bartlett 1967
349	1955 Sep 7, 03 ^h 20 ^m	Copernicus	Brightened in blue.	Firsoff	Firsoff 1966
350	1955 Sep 7, 04 ^h 52 ^m	Aristarchus	Strong blue-violet glare; E, NE rim; also E base of central peak. Dark violet, nimbus.	Bartlett	Bartlett 1967
351	1955 Sep 8, 04 ^h 32 ^m	Aristarchus	Strong bluish glare on E, NE wall, on S edge of E wall bright spot, and bordering both edges of the bright floor band, passing around W of central peak. Dark violet tint in nimbus.	Bartlett	Bartlett 1967
352	1955 Sep 8	Taurus Mountains	Two flashes from edge of Taurus Mountains.	Lambert	<u>Sky and Tel.</u> 1955
353	1955 Sep 9, 02 ^h 58 ^m	Aristarchus	Floor; blue clay color.	Bartlett	Bartlett 1967
354	1955 Sep 28, 23 ^h 00 ^m	Cobrahead	Obscured by brown patch.	Bestwick	Contrib. by Moore
355	1955 Oct 2, 05 ^h 42 ^m	Aristarchus	Violet glare, E, NE rim. Over E wall bright spot resembled a violet mist. Crater itself was hazy; could not get sharp focus.	Bartlett	Bartlett 1967
356	1955 Oct 4, 04 ^h 55 ^m	Aristarchus	Pale violet tint; E wall bright spot and whole length of E rim; dark violet in nimbus.	Bartlett	Bartlett 1967
357	1955 Oct 4 ^s	Aristarchus	Spectrum enhanced in H and K region.	Kozyrev	Kozyrev 1957
358	1955 Oct 5, 03 ^h 44 ^m	Aristarchus	Intensely bright blue-violet glare; E wall bright spot, E, NE wall.	Bartlett	Bartlett 1967
359	1955 Oct 31, 00 ^h 40 ^m	Aristarchus	Bright blue-violet glare, E, NE rim; dark violet hue in nimbus; pale violet radiance over plateau.	Bartlett	Bartlett 1967

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
360	1955 Oct 31, 04 ^h 50 ^m	Aristarchus	Intense blue-violet glare, E, NE rim. Dark violet in nimbus; pale violet on plateau.	Bartlett	Bartlett 1967
361	1955 Oct 31, 19 ^h 00 ^m	Cobrahead	Dark blue obscuration.	Milligan	Contrib. by Moore
362	1955 Nov 1, 03 ^h 18 ^m	Aristarchus	Pale violet tint; E wall bright spot, E, NE rim, dark violet hue in nimbus.	Bartlett	Bartlett 1967
363	1955 Nov 6, 05 ^h 50 ^m	Aristarchus	Strong blue-violet glare, E, NE wall. Dark violet hue in nimbus.	Bartlett	Bartlett 1967
364	1955 Nov 27, 02 ^h 48 ^m	Aristarchus	Floor; blue clay color.	Bartlett	Bartlett 1967
365	1955	Plato		Sytinskaya	Azevado 1962
366	1955	Aristarchus		Sytinskaya	Azevado 1962
367	1955	Tycho		Sytinskaya	Azevado 1962
368	1956 Jan 24	W edge of Cavendish; ~10 min	Variable point of light.	Houghton, Warner	<u>Strol. Astr.</u> 1955
369	1956 Jan 27, 01 ^h 18 ^m	Aristarchus	Violet glare whole length of E wall and around E wall bright spot; violet tint N and NE of crater.	Bartlett	Bartlett 1967
370	1956 Jan 28, 02 ^h 33 ^m	Aristarchus	Pale violet radiance; E, NE rim.	Bartlett	Bartlett 1967
371	1956 Mar 14, 19 ^h 00 ^m		Twilight at S cusp traced 400 mi. beyond cusp. No trace of twilight at N pole. 6 1/2 inch reflector used. Moon 2 1/2 days old.	Firsoff	<u>J.B.A.A.</u> 1956
372	1956 Mar 18		Anomalous dimming of ϵ Tau and 105 Tau before occultation.	Firsoff	<u>J.B.A.A.</u> 1956
373	1956 Jun 20, 03 ^h 39 ^m	Aristarchus	Blue glare, base inner W wall.	Bartlett	Bartlett 1967
374	1956 Jun 26, 07 ^h 42 ^m	Aristarchus	Intense blue-violet glare; on E wall bright spot. Dark violet in nimbus.	Bartlett	Bartlett 1967
375	1956 Jun 28, 05 ^h 35 ^m	Aristarchus	Intense blue-violet glare, E wall bright spot. Dark violet, nimbus. Pale violet N and NE of crater and on plateau.	Bartlett	Bartlett 1967
376	1956 Jun 29, 06 ^h 10 ^m	Aristarchus	Faint, blue-violet tint; E wall bright spot.	Bartlett	Bartlett 1967

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
377	1956 Jun 30, 06 ^h 55 ^m	Aristarchus	Vivid blue-violet glare; E wall bright spot, E, NE wall.	Bartlett	Bartlett 1967
378	1956 Jul 28, 05 ^h 40 ^m	Aristarchus	Vivid blue-violet glare on central peak, band across E floor to E wall bright spot; on E wall bright spot, and E, NE wall. Absent by 07 ^h 20 ^m .	Bartlett	Bartlett 1967
379	1956 Oct 16, 02 ^h 34 ^m	Aristarchus	Blue glare, base inner W wall.	Bartlett	Bartlett 1967
380	1956 Oct 20, 00 ^h 45 ^m	Aristarchus	Bright blue-violet glare on E wall bright spot, E, NE rim. Dark violet in nimbus.	Bartlett	Bartlett 1967
381	1956 Oct 26 ^s	Alphonsus	A suspected partial obscuration of the floor based on differences in detail in infrared and ultraviolet photographs.	Alter	Alter 1956, 1959
382	1956 Nov 15, 01 ^h 17 ^m	Aristarchus	Faint blue radiance, base inner W wall.	Bartlett	Bartlett 1967
383	1956 Nov 16, 03 ^h 33 ^m	Aristarchus	Floor; bright bluish tint E of central peak; blue-gray W of central peak.	Bartlett	Bartlett 1967
384	1956 Nov 17-18	Aristarchus, Tycho, Kepler, Proclus, Manilius, Byrgius	Extraordinarily bright.	Argentiére, <u>et al.</u>	Azevado 1962
385	1956	Tycho		Dubois	Azevado 1962
386	1956	Mare Humorum		Vigroux	Azevado 1962
387	1957 Mar 17, 06 ^h 24 ^m	Aristarchus	Strong violet glare; E wall bright spot and whole length of E wall. Dark violet in nimbus; pale violet on plateau.	Bartlett	Bartlett 1967
388	1957 Mar 18, 06 ^h 43 ^m	Aristarchus	Strong violet glare; E wall bright spot, E wall. Very strong violet hue in nimbus.	Bartlett	Bartlett 1967
389	1957 Jun 11, 04 ^h 48 ^m	Aristarchus	Floor; uniform bluish radiance.	Bartlett	Bartlett 1967

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
390	1957 Jul 11, 05 ^h 40 ^m	Aristarchus	Pale violet radiance in crater and on plateau.	Bartlett	Bartlett 1967
391	1957 Aug 18, 06 ^h 58 ^m	Aristarchus	Pale blue tint on all walls; floor dazzling white.	Bartlett	Bartlett 1967
392	1957 Oct 11, 03 ^h 15 ^m	Aristarchus	Bright blue-violet; E wall bright spot, E, NE rim. Dark violet in nimbus.	Bartlett	Bartlett 1967
393	1957 Oct 12, 02 ^h 40 ^m	Aristarchus	Bright blue-violet glare; E wall bright spot, E, NE, N, NW walls. Dark violet, nimbus.	Bartlett	Bartlett 1967
394	1957 Oct 12	Aristarchus; 1 hr	Bright flash; then brownish eccentric patch.	Dachille and daughter	Cameron 1965
395	1957 Oct 13, 04 ^h 00 ^m	Aristarchus	Weak violet glare; whole length of E wall.	Bartlett	Bartlett 1967
396	1957 Oct 13	In or near Aristarchus	Bright spot of light ("explosion").	Haas	Haas 1957
397	1957 Oct 15, 05 ^h 45 ^m	Aristarchus	Strong blue-violet glare, whole length of E wall.	Bartlett	Bartlett 1967
398	1957 Oct 16, 06 ^h 00 ^m	Aristarchus	Faint blue-gray tint; N, NW, W floor and walls.	Bartlett	Bartlett 1967
399	1958 May 1, 03 ^h 00 ^m	Aristarchus	Entire sunlit area of floor, bluish.	Bartlett	Bartlett 1967
400	1958 May 4, 06 ^h 28 ^m	Aristarchus	Blue-violet glare S side of E wall bright spot; dark violet in nimbus; pale violet on plateau.	Bartlett	Bartlett 1967
401	1958 May 31, 03 ^h 40 ^m	Aristarchus	Pale blue-gray floor; violet band E base of central peak.	Bartlett	Bartlett 1967
402	1958 Jun 29, 04 ^h 04 ^m	Aristarchus	Floor; very pale bluish tint.	Bartlett	Bartlett 1967
403	1958 Jul 2, 06 ^h 29 ^m	Aristarchus	Strong violet glare whole length of E wall, involving E wall bright spot; dark violet, nimbus.	Bartlett	Bartlett 1967

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
404	1958 Jul 3, 07 ^h 06 ^m	Aristarchus	Bright blue-violet glare; E, NE rim. Dark violet, nimbus; pale violet, plateau.	Bartlett	Bartlett 1967
405	1958 Aug 2, 06 ^h 15 ^m	Aristarchus	Strong violet glare; E wall bright spot, NE wall. Dark violet, nimbus. Strong violet, plateau.	Bartlett	Bartlett 1967
406	1958 Sep 1, 07 ^h 27 ^m	Aristarchus	Whole crater filled with pale violet radiance, especially bright on walls. Pale violet N and NE of crater and on plateau.	Bartlett	Bartlett 1967
407	1958 Sep 23	Piton	Became enveloped in an obscuring cloud-like mist.	Moore	Moore obs. book
408	1958 Oct 16	N of Mare Crisium	Bright spot in dark area of moon.	Mayemson	Mayemson 1965
409	1958 Nov 3 ^s 03 ^h 00 ^m	Alphonsus	Reddish glow, followed by effusion of gas.	Kozyrev	Kozyrev 1959, 1963; Green 1965
410	1958 Nov 19, 04 ^h 00 ^m - 04 ^h 30 ^m	Alphonsus; 30 min	Diffuse cloud over central mountain.	Poppendiek, Bond	Alter 1959; Poppendiek and Bond 1959
411	1958 Nov 19, 22 ^h 05 ^m	Alpetragius	Portion of shadow in crater vanished.	Stein	Stein 1959
412	1958 Nov 19	Alphonsus	Reddish patch close to central peak.	Wilkins, Hole	Wilkins 1959; Hole 1959
413	1958 Nov 22	Alphonsus	Gray spot.	Bartha	Moore 1965
414	1958 Dec 19	Alphonsus	Reddish patch close to central peak.	Wilkins, Hole	Wilkins 1959; Hole 1959; Moore 1965
415	1959 Jan 22	Aristarchus	Interior, light brilliant blue, later turning white.	Alter	Alter NASA Report
416	1959 Jan 23	Aristarchus	Brilliant blue interior.	Alter	Cameron 1965
417	1959 Feb 18	Alphonsus	Red patch.	Hole	Moore 1965
418	1959 Mar 24, 02 ^h 33 ^m and 04 ^h 55 ^m	Aristarchus	Strong blue and blue-violet glares; E wall, E wall bright spot, S wall bright spot; intermittent display. Observation at 04 ^h 55 ^m of same phenomena.	Bartlett	Bartlett 1967

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
419	1959 Mar 25, 05 ^h 24 ^m	Aristarchus	Intense blue-violet glare on whole length of E rim and on E wall bright spot; dark violet hue in nimbus.	Bartlett	Bartlett 1967
420	1959 Apr 19	W of Mare Humorum	Bright point to W of mare.	Mcfarlane	<u>Strol. Astr.</u> 1959
421	1959 Sep 5	Aristarchus	Irregular, intermittent starlike point of light, 8th to 9th mag, appeared within bright area. No color seen.	Rule	Rule 1959
422	1959 Sep 13	Littrow	Obliterated by a hovering cloud (Feist disagrees with Bradford).	Bradford	Contrib. by Moore
423	1959 Oct 23 ^s	Alphonsus	Red glow seen. Spectrum showed unusual features.	Kozyrev	Kozyrev 1962
424	1960 Jan 6	Alphonsus	Red spot.	Warner	<u>J. Int. Lunar Soc.</u> 1960
425	1960 Nov	Piton; ~30 min	Red obscuration concealing peak.	Schneller	Cameron 1965
426	1960 Dec	Piton	Red obscuration less intense than in November.	Schneller	Cameron 1965
427	1961 Jan	Piton	Red obscuration less intense than in November.	Schneller	Cameron 1965
428	1961 Feb 15 ^s , ~08 ^h 11 ^m	Aristarchus, Plato	Seen as bright features during solar eclipse (on film of eclipse shown by BBC May 6, 1966).	Sartory, Middlehurst	Contrib. by Middlehurst
429	1961 May 30-31 ^s	Aristarchus	Enhancement of spectrum in UV.	Grainger, Ring	Grainger and Ring 1963
430	1961 Jun 27-28 ^s	Aristarchus, ray near Bessel	Enhancement of spectrum in UV.	Grainger, Ring	Grainger and Ring 1963
431	1961 Jun 29-30 ^s	E of Plato	Enhancement of spectrum in UV.	Grainger, Ring	Grainger and Ring 1963
432	1961 Oct 18	Eratosthenes	Bright spot in crater.	Bartlett	<u>Strol. Astr.</u> 1962
433	1961 Nov 26 ^s	Aristarchus region	Red glow seen. Anomalous spectra in red and blue.	Kozyrev	Kozyrev 1963
434	1961 Nov 28 ^s	Aristarchus region	Red glow seen. Anomalous spectra in red and blue.	Kozyrev	Kozyrev 1963
435	1961 Dec 3 ^s	Aristarchus region	Red glow seen. Anomalous spectra in red and blue.	Kozyrev	Kozyrev 1963

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
436	1962 Sep 5	Region of Walker near terminator; 7 min	Faint point of light.	Chalk	Cameron 1965
437	1962 Sep 16 ⁵	"Whole moon"	Spectrum showed UV emission, particularly in region of H and K lines by comparison with spectra of Sun, Mars, and Jupiter.	Spinrad	Spinrad 1964
438	1962 Oct 8	Aristarchus; ~1 hr	Activity.	Adams	Cameron 1965
439	1963 Oct 5 ⁵	Aristarchus region	Enhancement of 30 percent at 5450 Å.	Scarfe	Scarfe 1965
440	1963 Oct 30	Aristarchus region	Color changes: reddish-orange to ruby patches.	Greenacre, Barr	Greenacre 1963
441	1963 Oct 30	Cobrahead; 7 min	Brightened area, 7th to 11th mag.	Budine, Farrell	Cameron 1965
442	1963 Nov 1 ⁵ , 23 ^h 00 ^m	Near Kepler; ~20 min	Enhancement of large area in red light.	Kopal, Rackham	Kopal and Rackham 1964a, 1964b
443	1963 Nov 11	Aristarchus	Color changes.	Jacobs	Shorthill 1963; Green 1965, p. 409
444	1963 Nov 28	Aristarchus, Schröter's Valley; 1 hr 15 min	Red spots, then violet, blue haze.	Greenacre, et al.	Greenacre 1963
445	1963 Nov 28	Cobrahead; 35 min	Pink spot on W side.	Tombaugh	Cameron 1965
446	1963 Nov 28	Aristarchus, Anaximander; ~1 hr	Red spot in Aristarchus and also on N edge of Anaximander.	W. Fisher	Cameron 1965
447	1963 Dec 28, 15 ^h 55 ^m - 16 ^h 26 ^m	Aristarchus-Herodotus; 31 min	Extensive red area.	9 students at Hiroshima, Japan	Sato 1964
448	1963 Dec 29-30, 22 ^h 00 ^m - 03 ^h 00 ^m	Aristarchus region; 5 hr	Purplish-blue patch.	Doherty and others	Contrib. by Moore
449	1963 Dec 30 ⁵ , ~11 ^h 00 ^m	NE limb; ~20 min	During eclipse, anomalous reddish glow inside umbra. (Lunar eclipse.)	Many observers	<u>Sky and Tel.</u> 1964
450	1964 Feb 25	Cobrahead; 3 min, Aristarchus; 1 min	Red flashes, > 12 mag.	Budine	Cameron 1965

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
451	1964 Mar 16	Aristarchus	Sudden red glow on SW rim.	Lecuona	Cameron 1965
452	1964 Mar 18	Aristarchus	Flash.	Earl and brother	Cameron 1965
453	1964 Mar 26, 00 ^h 37 ^m	Aristarchus	Floor; blue clay color.	Bartlett	Bartlett 1967
454	1964 Mar 28, 01 ^h 59 ^m	Aristarchus	Blue-violet glare, E wall and N wall; E wall bright spot; violet tinge in nimbus.	Bartlett	Bartlett 1967
455	1964 Apr 22	Near Ross D	Bright spot.	Cross and others	Harris 1967
456	1964 Apr 26	Region of Censorinus	Surface brightening somewhat similar to Kopal-Rackham (1963 Nov 1) event.	Hopmann	Hopmann 1966
457	1964 May 17	Theophilus	Crimson color on W rim, ~10 mag.	Dieke	Cameron 1965
458	1964 May 18, 03 ^h 55 ^m - 05 ^h 00 ^m	SE of Ross D; 1 hr, 5 min	White obscuration moved 20 mph, decreased in extent. Phenomenon repeated. Newtonians 8" f/7 and 9" f/7 used.	Harris, Cross and others	Cameron 1965; Harris 1967
459	1964 May 20	Plato; ~10 min	Strong orange-red color on W rim of crater, >10 mag.	Bartlett	Greenacre 1965
460	1964 May 26, 04 ^h 22 ^m	Aristarchus	Strong blue-violet glare, E wall and E wall bright spot; strong violet tinge in nimbus.	Bartlett	Bartlett 1967
461	1964 May 28, 05 ^h 38 ^m	Aristarchus	Blue-violet glare; E, NE wall. Dark violet hue in nimbus.	Bartlett	Bartlett 1967
462	1964 May 30, 07 ^h 31 ^m	Aristarchus	Bright blue-violet glare; E wall bright spot, E, NE walls. Dark violet, nimbus.	Bartlett	Bartlett 1967
463	1964 Jun 6	Aristarchus area; 50 min	Spur between Aristarchus and Herodotus; red spots (glow) in Schröter's Valley.	Schmidling, St. Clair, Platt	Cameron 1965
464	1964 Jun 17	SE of Ross D	Moving bright spot; 2 brief obscurations of part of wall. Newtonian, 19" f/7.	Cross, Harris	Harris 1967
465	1964 Jun 20, 06 ^h 00 ^m	Aristarchus	Nimbus only; dark violet hue.	Bartlett	Bartlett 1967
466	1964 Jun 21, 03 ^h 43 ^m - 05 ^h 44 ^m	S of Ross D; 2 hr, 1 min	Moving dark area. Newtonian 19" f/7.	Harris, Cross, Helland	Harris 1967

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
467	1964 Jun 23, 04 ^h 55 ^m	Aristarchus	Blue-violet glare, NE rim; strong violet tinge in nimbus.	Bartlett	Bartlett 1967
468	1964 Jun 25 ^s , ~01 ^h 07 ^m	Aristarchus	Very bright during eclipse (direct photograph, lunar eclipse).	Tiulaer	Hemel en Dampkring 1967
469	1964 Jun 25, 01 ^h 07 ^m	Grimaldi	During lunar eclipse, white streak from Grimaldi toward limb.	Azevado	Letter to Moore
470	1964 Jun 26, 05 ^h 24 ^m	Aristarchus	Dark violet in nimbus; pale violet on plateau. Absent from crater.	Bartlett	Bartlett 1967
471	1964 Jun 27, 05 ^h 48 ^m	Aristarchus	Bright blue-violet; E wall bright spot, E, NE rim. Dark violet in nimbus.	Bartlett	Bartlett 1967
472	1964 Jun 28, 06 ^h 44 ^m	Aristarchus	Blue-violet glare; E wall bright spot, E, NE, N, NW walls.	Bartlett	Bartlett 1967
473	1964 Jun 28	S region of Aristarchus	Reddish-brown tone observed.	Bartlett	Greenacre 1965
474	1964 Jul 16	SE of Ross D	Temporary "hill," est 3 km diam and shadow seen.	Cragg	Harris 1967
475	1964 Jul 17	Plato	Faint pink bands at base of inner W wall and on rim of N wall.	Bartlett	Greenacre 1965
476	1964 Jul 18	SE of Ross D	Bright area moved and shrank. Extent greater with amber filter.	Harris	Cameron 1965; Harris 1967
477	1964 Jul 18	Plato; some minutes	Pink tinge to W wall, 10th mag.	Bartlett	Cameron 1965
478	1964 Jul 28, 04 ^h 43 ^m	Aristarchus	Blue-violet glare; E wall bright spot. Dark violet in nimbus; pale violet on plateau.	Bartlett	Bartlett 1967
479	1964 Jul 29, 05 ^h 50 ^m	Aristarchus	Nimbus only; dark violet hue.	Bartlett	Bartlett 1967
480	1964 Jul 31, 05 ^h 28 ^m	Aristarchus	Pale blue tint; NE, N, NW walls and floor.	Bartlett	Bartlett 1967
481	1964 Aug 16, 04 ^h 18 ^m - 05 ^h 20 ^m	SE of Ross D; 1 hr, 2 min	Bright area. Condensations varying with time.	Harris, Cross	Harris 1967
482	1964 Aug 24, 04 ^h 22 ^m	Aristarchus	Bright blue-violet; E wall bright spot, E, NE wall.	Bartlett	Bartlett 1967
483	1964 Aug 25, 04 ^h 58 ^m	Aristarchus	Bright blue-violet; E wall bright spot, E, NE rim. Dark violet in nimbus.	Bartlett	Bartlett 1967

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
484	1964 Aug 26, 04 ^h 16 ^m	Aristarchus	Blue-violet glare; E wall bright spot, E, NE rim. Dark violet hue in nimbus.	Bartlett	Bartlett 1967
485	1964 Aug 26	Aristarchus; ~1 hr	Red and blue bands.	Genatt, Reid	Cameron 1965
486	1964 Aug 27, 04 ^h 37 ^m	Aristarchus	Blue-violet glare; E wall bright spot, E, NE wall. Dark violet, nimbus; pale violet on plateau.	Bartlett	Bartlett 1967
487	1964 Aug 28, 04 ^h 40 ^m	Aristarchus	Faint blue-violet radiance, E wall bright spot and NE rim. Dark violet in nimbus.	Bartlett	Bartlett 1967
488	1964 Sep 18, 01 ^h 15 ^m	Aristarchus	Craterlet, base NW wall; bluish.	Bartlett	Bartlett 1967
489	1964 Sep 20	Aristarchus- Herodotus	Several red spots in area.	Crowe, Cross	Cameron 1965
490	1964 Sep 20	SE of Ross D	Bright obscuration.	Cross	Cameron 1965; Harris 1967
491	1964 Sep 22, 03 ^h 03 ^m	Aristarchus	Bright blue-violet glare; E wall bright spot and NE rim. Dark violet in nimbus.	Bartlett	Bartlett 1967
492	1964 Sep 22	Kunowsky; > 1 hr	Red area blinked in blinker.	Gilheaney, Hall, L. Johnson	Cameron 1965
493	1964 Sep 23, 03 ^h 30 ^m	Aristarchus	Blue-violet flare [glare?]; E wall bright spot, E, NE, N, NW wall.	Bartlett	Bartlett 1967
494	1964 Sep 25, 04 ^h 05 ^m	Aristarchus	Blue-violet glare; E wall bright spot. Dark violet on nimbus.	Bartlett	Bartlett 1967
495	1964 Sep 25, 04 ^h 43 ^m	Aristarchus	Blue-violet glare; E wall bright spot. Dark violet in nimbus; pale violet on plateau.	Bartlett	Bartlett 1967
496	1964 Sep 26, 05 ^h 07 ^m	Aristarchus	Moderately intense; E wall bright spot. Dark violet, nimbus.	Bartlett	Bartlett 1967
497	1964 Oct 19, 02 ^h 02 ^m	Aristarchus	Strong blue tint E half of floor; blue-violet glare, base E side central peak.	Bartlett	Bartlett 1967

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
498	1964 Oct 22, 02 ^h 12 ^m	Aristarchus	Blue-violet glare, E wall bright spot, E, NE wall. Dark violet hue in nimbus.	Bartlett	Bartlett 1967
499	1964 Oct 24, 04 ^h 02 ^m	Aristarchus	Blue-violet glare; E wall bright spot, E, NE rim. Dark violet hue in nimbus.	Bartlett	Bartlett 1967
500	1964 Oct 25, 04 ^h 17 ^m	Aristarchus	Nimbus only; dark violet hue.	Bartlett	Bartlett 1967
501	1964 Oct 25, 04 ^h 37 ^m	Aristarchus	Blue-violet glare; E wall bright spot, E, NE wall. Faint violet tinge in nimbus.	Bartlett	Bartlett 1967
502	1964 Oct 26, 04 ^h 22 ^m	Aristarchus	Nimbus only; dark violet hue.	Bartlett	Bartlett 1967
503	1964 Oct 27	Alphonsus	Reddish-pink patch at base of sunlit central peak.	L. Johnson, et al.	Cameron 1965
504	1964 Nov 14	Plato	Peak on W wall very brilliant white. At foot of peak on inner side, strong blue band. Immediately adjacent, on SE was a small, bright, red spot.	Bartlett	Greenacre 1965
505	1964 Nov 21, 01 ^h 57 ^m	Aristarchus	Bright blue-violet glare; NE, N, and NW rims.	Bartlett	Bartlett 1967
506	1964 Nov 23, 03 ^h 29 ^m	Aristarchus	Strong blue-violet glare; N, NE, NW walls. Dark violet, nimbus.	Bartlett	Bartlett 1967
507	1964 Nov 24, 04 ^h 50 ^m	Aristarchus	Blue-violet glare, N rim. Dark violet in nimbus; pale violet N and NE of crater.	Bartlett	Bartlett 1967
508	1964 Dec 19	Aristarchus; 1 min	Brightened by a factor of 5.	Budine, Farrell	Cameron 1965
509	1964 Dec 19, ~02 ^h 35 ^m		Anomalous bright area during lunar eclipse.	S. Hill and student	Hill 1966
510	1964 Dec 19 ^s , ~02 ^h 35 ^m	Edge of Mare Nubium	Photoelectric photometry showed strong anomalous enhancement of radiation during lunar eclipse.	Sanduleak, Stock	Sanduleak and Stock 1965

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
511	1965 Mar 14, 07 ^h 40 ^m	SE of Ross D	Crater wall partially obscured. Bright area. Cassegrain 12", f/15.	Cross	Harris 1967
512	1965 Jul 1	Aristarchus, dark side	Starlike image.	Emanuel	Cameron 1965
513	1965 Jul 2	Aristarchus; 1 hr 21 min	Bright spot like star on dark side, estimated mag 4.	Emanuel, <u>et al.</u>	Greenacre 1965
514	1965 Jul 3	Aristarchus; ~1 hr 10 min	Pulsating spot on dark side.	Emanuel, <u>et al.</u>	Greenacre 1965
515	1965 Jul 4	Aristarchus; 1 hr	Bright spot, no pulsations, on dark side.	Emanuel, <u>et al.</u>	Greenacre 1965
516	1965 Jul 7	Grimaldi	White streak extended toward limb.	Azevado, <u>et al.</u>	<u>Revista Astr.</u> 1965
517	1965 Jul 8	Theophilus; 10 min	Bright spot.	Cross	Cameron 1965; Greenacre 1965
518	1965 Jul 9	Aristarchus; 2 hr 6 min	Starlike image.	Emanuel	Cameron 1965
519	1965 Jul 31	Aristarchus	Starlike image.	Welch	Cameron 1965
520	1965 Aug 2	Aristarchus; ~1 min	Starlike brightening, 8th to 9th mag.	Bornhurst	Cameron 1965
521	1965 Aug 3	Aristarchus; ~6 min	Starlike image, 6th to 7th mag.	Bornhurst	Cameron 1965
522	1965 Aug 4	Aristarchus; ~2 min	Starlike image, 6th to 7th mag.	Bornhurst	Cameron 1965
523	1965 Sep 3	SE of Ross D	Ridge obscured.	Harris	Harris 1967
524	1965 Sep 9, 13 ^h 20 ^m	Aristarchus	Orange-red strip on floor.	Presson	Contrib. by Moore
525	1965 Oct 10, 06 ^h 07 ^m	Aristarchus	Pale violet radiance; whole of W interior; dark violet, nimbus; pale violet on plateau.	Bartlett	Bartlett 1967
526	1965 Oct 11, 01 ^h 47 ^m	Aristarchus	Whole crater, exclusive of S area, pale violet; dark violet in nimbus; pale violet on plateau.	Bartlett	Bartlett 1967
527	1965 Oct 12, 02 ^h 20 ^m	Aristarchus	Nimbus only; dark violet hue.	Bartlett	Bartlett 1967

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
528	1965 Oct 13, 03 ^h 02 ^m	Aristarchus	Pale, blue-violet tint on E wall bright spot and whole length of E wall; pale violet radiance in crater, exclusive of S region. Dark violet, nimbus.	Bartlett	Bartlett 1967
529	1965 Nov 15	Aristarchus	Bright spots.	L. Johnson	<u>Phys. Today</u> 1966
530	1965 Dec 1		Reddish glow followed by black obscuraton.	Evrard and others	Gingerich 1966
531	1965 Dec 4, 04 ^h 25 ^m	Ross D	Obscuration of part of rim, also bright area 7-10 km diameter, not seen on following night (04 ^h 00 ^m - 07 ^h 30 ^m).	Cross (Harris, Cragg on Dec 5)	Harris 1967
532	1966 Feb 7, 01 ^h 10 ^m	Aristarchus	Nimbus only; intense violet hue.	Bartlett	Bartlett 1967
533	1966 Mar 29, 21 ^h 00 ^m	Archimedes	Floor bands brilliant.	E. G. Hill	<u>B.A.A. Lunar Sec.</u> <u>Circ.</u> 1966, <u>1</u> , No. 6
534	1966 Apr 2, 23 ^h 30 ^m	Aristarchus; 20 min	Central peak very bright.	M. Brown	<u>B.A.A. Lunar Sec.</u> <u>Circ.</u> 1966, <u>1</u> , No. 7
535	1966 Apr 3, 23 ^h 00 ^m	Aristarchus; 30 min	Central peak very bright.	M. Brown	<u>B.A.A. Lunar Sec.</u> <u>Circ.</u> 1966, <u>1</u> , No. 7
536	1966 Apr 12, 01 ^h 05 ^m	Gassendi; 18 min	Abrupt flash of red settling im- mediately to point of red haze near NW wall. Continuous until 01 ^h 23 ^m .	Whipsey	<u>B.A.A. Lunar Sec.</u> <u>Circ.</u> 1967, <u>2</u> , No. 5
537	1966 Apr 30- May 2	Gassendi	Red glows.	Sartory, Moore, Moseley, Ringsdore	<u>J.B.A.A.</u> 1966; <u>B.A.A. Lunar Sec.</u> <u>Circ.</u> 1966, <u>1</u> , No. 6
538	1966 May 1, 21 ^h 55 ^m - 22 ^h 45 ^m	Aristarchus; 50 min	Red patch.	Patterson	<u>B.A.A. Lunar Sec.</u> <u>Circ.</u> 1966, <u>1</u> , No. 6
539	1966 May 1, 22 ^h 10 ^m	Aristarchus; 15 min	Small intense white spot NW of crater wall.	M. Brown, Sartory	<u>B.A.A. Lunar Sec.</u> <u>Circ.</u> 1966, <u>1</u> , Nos. 6, 7
540	1966 May 27, 21 ^h 10 ^m	Alphonsus; 50 min	Faint red patches.	Sartory, Moore, Moseley	<u>B.A.A. Lunar Sec.</u> <u>Circ.</u> 1966, <u>1</u> , No. 6

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
541	1966 May 30, 20 ^h 52 ^m	Gassendi; 7 min	Blink, orange patch and obscuration.	Sartory	<u>B.A.A. Lunar Sec.</u> <u>Circ. 1966, 1, No. 6</u>
542	1966 Jun 1, 03 ^h 20 ^m	Aristarchus	Entire sunlit area of floor, bluish.	Bartlett	Bartlett 1967
543	1966 Jun 3, 06 ^h 10 ^m	Aristarchus	Nimbus only, violet hue.	Bartlett	Bartlett 1967
544	1966 Jun 26, 04 ^h 30 ^m - 04 ^h 40 ^m	Alphonsus; 10 min	Absorption band (4880 ± 50 Å) seen in spectrum of central peak.	Harris, Arriola	Harris 1967
545	1966 Jun 27	Plato; 15 min	Inside SW wall of crater, blink.	Hedley- Robinson, Sartory	<u>B.A.A. Lunar Sec.</u> <u>Circ. 1966, 1, No. 11</u>
546	1966 Jul 10, 02 ^h 00 ^m	Triesnecker; 1 hr	Bright streak in crater.	Allen	<u>B.A.A. Lunar Sec.</u> <u>Circ. 1966, 1, No. 10</u>
547	1966 Aug 4-5 22 ^h 37 ^m - 23 ^h 30 ^m and 02 ^h 32 ^m - 02 ^h 58 ^m	Plato; 53 min, 26 min	Red color, NE wall and floor.	Corvan, Moseley	<u>B.A.A. Lunar Sec.</u> <u>Circ. 1966, 1, No. 10</u>
548	1966 Sep 2, 00 ^h 00 ^m	Gassendi; 3 hr	Reddish patches.	Moore, <u>et al.</u> (8 observers)	<u>B.A.A. Lunar Sec.</u> <u>Circ. 1966, 1, No. 10;</u> <u>ibid. 1966, 1, No. 11</u>
549	1966 Sep 2, 03 ^h 16 ^m	Alphonsus; intermittent, 1 hr 02 min	A series of weak glows; Final flash observed at 04 ^h 18 ^m .	Whipsey	<u>B.A.A. Lunar Sec.</u> <u>Circ. 1967, 2, No. 12</u>
550	1966 Sep 3, 03 ^h 55 ^m	Gassendi	Blinks on NE, ENE walls and SW and W of central peak.	Moseley	<u>B.A.A. Lunar Sec.</u> <u>Circ. 1966, 1, No. 10</u>
551	1966 Sep 25, 20 ^h 20 ^m	Gassendi; 30 min	Reddish patches.	Moore, Moseley	<u>B.A.A. Lunar Sec.</u> <u>Circ. 1966, 1, No. 11</u>
552	1966 Sep 25, 23 ^h 12 ^m	Plato; 3 min	Blinks in crater.	Moseley	<u>B.A.A. Lunar Sec.</u> <u>Circ. 1966, 1, No. 11</u>
553	1966 Oct 25, 03 ^h 46 ^m	SE of Ross D	Large bright area obscuring half of crater wall. Not present Oct 24. Newtonian 19" f/7.	Cross	Harris 1967
554	1966 Oct 25, 22 ^h 30 ^m	Gassendi	Red blinks, N wall.	Moore, Moseley, Sartory	<u>B.A.A. Lunar Sec.</u> <u>Circ. 1967, 2, No. 1</u>

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
555	1966 Oct 29, 00 ^h 45 ^m - 01 ^h 30 ^m	Copernicus, N rim; 45 min	Red spot.	Walker	Walker 1966
556	1966 Dec 22, 06 ^h 00 ^m - 06 ^h 30 ^m	Messier-W. H. Pickering; 30 min	Blinks on floors of both craters.	Kelsey	B.A.A. Lunar Sec. Circ. 1967, 2, No. 4
557	1966 Dec 23, 05 ^h 15 ^m - 07 ^h 10 ^m	Plato; 55 min	Numerous light streaks on floor, three bright spots on floor, all showed blinks.	Kelsey	B.A.A. Lunar Sec. Circ. 1967, 2, No. 4
558	1966 Dec 27, 06 ^h 30 ^m - 07 ^h 05 ^m	Gassendi; 35 min	Very faint blink on SW floor and another N of it on NW floor (ob- server considers observation very suspect).	Kelsey	B.A.A. Lunar Sec. Circ. 1967, 2, No. 4
559	1967 Jan 21, 19 ^h 35 ^m	Gassendi	Small blink and suspect faint colored patch in outer W wall in position of original observation of 1966 Apr 30.	Sartory, Moore, Moseley, Duckworth, Kilburn	B.A.A. Lunar Sec. Circ. 1967, 2, No. 3; ibid. 1967, 2, No. 4
560	1967 Feb 17, 17 ^h 47 ^m - 18 ^h 12 ^m	Alphonsus; 25 min	Blink just inside the SW floor of crater suspected on elevation NW of dark patch.	Moore, Moseley	B.A.A. Lunar Sec. Circ. 1967, 2, No. 4
561	1967 Feb 19, 20 ^h 30 ^m - 20 ^h 40 ^m	Alphonsus; 10 min	Bright red glow in position of suspected blink of 1967 Feb 17. Fading by 20 ^h 37 ^m .	Moseley, Moore	B.A.A. Lunar Sec. Circ. 1967, 2, No. 4
562	1967 Mar 22, 19 ^h 40 ^m	Gassendi	Red color and blink.	Moseley	B.A.A. Lunar Sec. Circ. 1967, 2, No. 5
563	1967 Mar 23, 18 ^h 40 ^m	Gassendi	Red color under S wall.	Sartory, Farrant	B.A.A. Lunar Sec. Circ. 1967, 2, No. 5
564	1967 Mar 23, 19 ^h 45 ^m	Cobrahead	Red color outside SE wall.	Moore, Moseley, Farrant	B.A.A. Lunar Sec. Circ. 1967, 2, No. 6
565	1967 Mar 23, 19 ^h 05 ^m - 19 ^h 55 ^m	Aristarchus	Red glows.	Sartory, Moore, Moseley, Farrant	B.A.A. Lunar Sec. Circ. 1967, 2, Nos. 5, 6

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
566	1967 Apr 15, 19 ^h 15 ^m - 21 ^h 00 ^m	Aristarchus (on dark side); 1 hr 45 min	Aristarchus very bright. Seeing very good until 21 ^h 00 ^m UT, after which seeing too bad to continue observing. On April 16 and 17 nothing special was to be seen.	Classen	Hopmann 1967
567	Apr 21, 19 ^h 16 ^m - 21 ^h 15 ^m	Aristarchus; 1 hr 59 min	Bright points on S wall. Red patch to NE.	Darnell, Farrant	B.A.A. Lunar Sec. <u>Circ. 1967, 2, No. 7</u>
568	1967 Apr 21, 21 ^h 20 ^m	Schröter's Valley, Cobrahead	Red color.	Darnell, Farrant	B.A.A. Lunar Sec. <u>Circ. 1967, 2, No. 7</u>
569	1967 Apr 22	Aristarchus (on bright side)	Aristarchus so bright that it could be seen with the naked eye.	Classen	Hopmann 1967
570	1967 May 20, 20 ^h 15 ^m - and 21 ^h 05 ^m - 21 ^h 20 ^m	Aristarchus; 15 min	Red spots on south rim. Moon low.	Darnell	B.A.A. Lunar Sec. <u>Circ. 1967, 2, No. 8</u>
571	1967 May 20	Gassendi	Elongated blink in crater, SW part of floor.	Kelsey	B.A.A. Lunar Sec. <u>Circ. 1967, 2, No. 8</u>
572	1967 May 29, 06 ^h 40 ^m - 07 ^h 25 ^m	Aristarchus; 45 min	Red-brown color.	C. A. Anderson	B.A.A. Lunar Sec. <u>Circ. 1967, 2, No. 8</u>
573	1967 Jun 18, 21 ^h 10 ^m - 22 ^h 30 ^m and 22 ^h 50 ^m - 23 ^h 59 ^m	Gassendi; 1 hr 20 min and 1 hr 9 min	Faint redness outside the NW and SW wall of Gassendi.	Whipsey	B.A.A. Lunar Sec. <u>Circ. 1967, 2, No. 8</u>
574	1967 Aug 13, 21 ^h 00 ^m	Alphonsus; 15 min	Glow in interior of crater.	Horowitz	B.A.A. Lunar Sec. <u>Circ. 1967, 2, No. 10</u>
575	1967 Sep 11, 00 ^h 32 ^m	Mare Tranquillitatis; 8-9 sec	Black cloud surrounded by violet color.	Montreal group	B.A.A. Lunar Sec. <u>Circ. 1967, 2, No. 12</u>
576	1967 Sep 11, 00 ^h 45 ^m	Sabine	Bright yellow flash visible a fraction of a second.	Mrs. P. Jean & Montreal group	B.A.A. Lunar Sec. <u>Circ. 1967, 2, No. 12</u>
577	1967 Sep 17, 02 ^h 05 ^m	Aristarchus	Red color observed.	Delano	Kelsey 1967

No.	Date and Time	Feature or Location; Duration	Description	Observer	Reference
578	1967 Oct 10, 02 ^h 15 ^m	SE of Ross D	Bright area moved 80 km/hr toward SSE and expanded as contrast reduced.	Harris	Harris 1967
579	1967 Oct 19, 05 ^h 00 ^m	Kepler, Aristarchus	High moon, 19 ^h after full, apogee. Kepler appeared at least one mag brighter than Aristarchus. On Oct 20 and 22 at 05 ^h UT, relative brightness returned to normal.	Classen	Classen 1967

¹ See text for critique of reports believed to be doubtful.

² Deduced from available data.

³ Probably eastern European or Berlin time.

⁴ Berlin time.

⁵ Objective (permanent) record made.

⁶ Pseudonym.

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2. Once the problem is identified, the next step is to define the objectives and goals of the project. This helps to clarify what needs to be achieved and provides a clear direction for the work.

3. The third step is to develop a plan or strategy to address the problem. This involves breaking down the problem into smaller, manageable tasks and determining the resources needed to complete them.

4. The fourth step is to implement the plan. This involves putting the strategy into action and monitoring progress to ensure that the objectives are being met.

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